



DR. VINES EDMUNDS TURNER



## Bacteriology in its Relationship to the Oral and Nasal Cavities.

By JOHN BETHUNE STEIN, M.D.

*Professor of Physiology and Histology at the New York College of Dentistry,  
New York.*

### III.

The Bacillus Typhosus, or Bacillus of Eberth (1880) (Figs. 27-28), may appear in subjects attacked by typhoid fever, in the spleen; in the solitary and agminated glands of Peyer; in the

**Bacillus  
Typhosus.** mesenteric lymph nodes; in the liver, marrow of bone, less frequently in the lungs, meninges, testicles and tonsils. There are cases of typhoid fever where the Bacillus Typhosus cannot be found in the intestinal tract. It is definitely established that the typhoid bacillus can enter the blood, producing a true septicemia (Marchoux, Ruediger, Busquet, Castellani, Widal, Courmont and Lesieur), and in patients having a severe or moderate typhoid fever the micro-organism may appear in the blood before the fifth day and remain till the end of the third week (Courmont). The Bacillus Typhosus has frequently been found in blood obtained from the "rose spots" (Thiemisch and Neuhaus, Neufeld, Besson). Rémy has proved the presence of the typhoid bacillus in the contents of the intestines, on the third day of the disease, before any ulceration of Peyer's patches. The number of typhoid bacilli in the feces increases up to the end of the first week, and then gradually decreases, and though

usually at the end of the fourth week none are found, Chantemesse and Décobert have found the bacilli in the feces a month after the patient was cured.

In a certain number of cured typhoid patients (three per cent., according to Schneider), particularly women, the typhoid bacillus may exist in the body for months or even years. Its favorite lodging place seems to be the gall bladder, and from here it passes into the intestines. It is easily understood how these "*chronic bacillus carriers*" can transmit the disease. Chantemesse, Remlinger and Schneider think this micro-organism exists as a saprophyte in the intestines of healthy persons, but

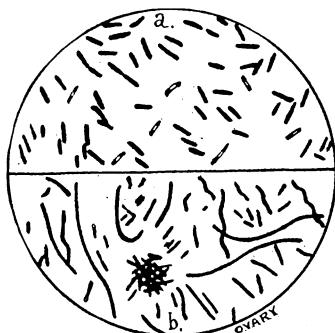


Fig. 27.

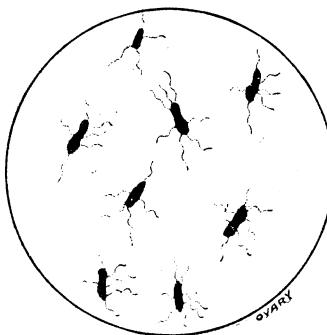


Fig. 28.

Fig. 27. *Bacillus Typhosus* (a) From a pure culture on agar, (b) From a pure culture on potatoe (From Macé).  $\times 800$ .

Fig. 28. *Bacillus Typhosus*. Showing flagella (Modified from Macé).  $\times 1500$ .

the investigations of Rémy, Courmont and Minelli indicate that this bacillus is found only in the intestines of those who have been infected. During the course of typhoid fever the *Bacillus* of Eberth may appear in the urine (Bouchard, Leitz, Neumann). Besson, from an examination of thirty-three typhoid cases, concludes that this micro-organism appears in the urine only when albumin is present (forty per cent. of the cases), and that it and the albumin disappear at the same time. Vincent, who has observed this bacillus in the urine in twenty per cent. of the cases of typhoid fever examined, has seen it persist after recovery; and thinks it reproduces itself in the urinary bladder. According to Horton Smith a light cystitis with pyuria may be occasioned by it. Numerous complications may be due to this micro-organism; as, pharyngitis, rhinopharyngitis, bronchopneumonia, abscesses, osteitis, adenitis, pleurisy and pericarditis. It has been found at the seat of old lesions. Widal reports it in an ovarian cyst and in a tubercular adenitis. It has frequently been detected in water, air bubbles in ice, the soil and in the dust of rooms

which were occupied by persons with typhoid fever. It is accepted that the *Bacillus coli* and the *Bacillus of Eberth* are two different species.

**Bacillus coli Communis.** The *Bacillus Coli Communis* or *Bacterium Coli Commune* (Escherich, 1886) (Fig. 29), is met with normally in the intestinal tract of men and animals, even a few hours after birth. In the intestinal tract of healthy persons it is associated with at least fifty other species of micro-organisms, mostly anaërobies. Grimbert and Choquet have demonstrated it in the mouth, in twenty-five of sixty-five mouths examined, where, also, it is associated with about fifty other species of micro-

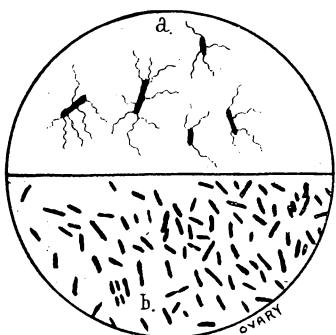


Fig. 29.

Fig. 29. *Bacillus Coli Communis*. (a) Showing flagella  $\times 1500$ , (b)  $\times 800$ . (Modified from Macé.)

Fig. 30. *Bacillus Dysentericae*.  $\times 700$ . (Modified from Macé.)

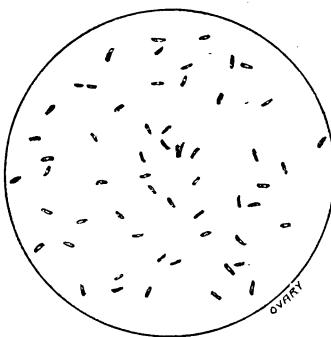


Fig. 30.

organisms, and it has been found on the hands (five to ten per cent.) of ordinarily cleanly individuals. The *Bacillus Coli* may become pathogenic, and produce a secondary infection in typhoid fever, colitis and cholera. It may complicate most of the diseases of the intestinal tract (Lesage, Sanarelli); is said to produce pharyngitis, bronchopneumonia, endocarditis, pericarditis and meningitis; has been found in the nuclei of gall stones (Kramer), and may pass into the blood and invade the gall bladder and bile ducts, producing a cholangitis and cholecystitis. Eighty per cent. of all urinary infections are said to be occasioned by this micro-organism (Rostoski). It is said to be the cause of a septicemia, presenting the clinical syndrome of any of the following diseases, viz: typhoid fever, enteritis, cholera infantum, peritonitis, salpingitis and metritis. It is the causal agent of most of the agonal and post mortem infections, and is found in the soil, dust and water which has been contaminated by animal dejecta.

**Bacillus  
Dysenteriae.**

Bacillary Dysentery, like typhoid fever, the scourge of military life, is caused by the *Bacillus Dysenteriae* (Chantemesse and Widal, 1888; Shiga, 1898; Kruse, 1900; Flexner, 1900) (Fig. 30).

This micro-organism is found in the stools, not only of persons suffering from dysentery, but also of those who are apparently well. Dysentery, like typhoid fever, appears to be disseminated by more or less direct contact with the carriers of the *Bacillus Dysenteriae*. The *Bacillus Dysenteriae* does not appear to live long outside of its host. There are a number of types of this bacillus called *Bacilli pseudo-dys-*

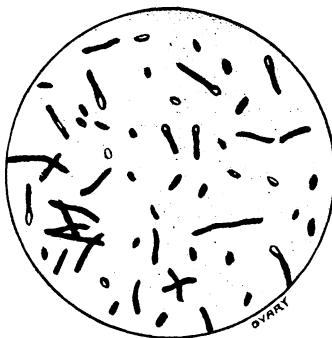


Fig. 31.

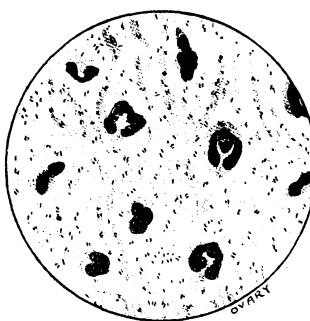


Fig. 32.

Fig. 31. *Bacillus Botulinus*. (Modified from van Ermenghem.)

Fig. 32. *Bacillus of Influenza* in the Nasal Mucus. (Modified from Kolle and Hetsch.)

teriae. They are all pathogenic. Chapin says "what is commonly called dysentery may be caused by a number of pathogenes, and the dysentery bacilli may cause diarrhoeal symptoms quite different from typical dysentery.

An interesting case is cited by Dodge of a laboratory worker getting some of the culture of the *Bacillus Dysenteriae* in his eye. The tears which flowed profusely were swallowed by him, and twenty-four hours later he developed an attack of dysentery.

**Bacillus  
Botulinus.** Botulismus or Atlantiasis is caused by the toxin of the *Bacillus Botulinus* (Van Ermenghen, 1895) (Fig. 31), following the ingestion of meat, sausages, fish or canned goods which are not fresh, and contain this micro-organism. The meat, sausages or fish may show no signs of putrefaction. Sometimes the canned goods have an abnormal odor or contain gas. The toxin in the ingested food is not found in all parts of it as the *Bacillus Botulinus* is anaerobic, and grows only at certain places

in the food. Thus there are persons who escape this infection who, nevertheless, have eaten some of the same food which has infected a number of other persons.

The symptoms begin twenty-four to twenty-six hours after the ingestion of the food containing the *Bacillus Botulinus*. The toxin of this micro-organism has a particular affinity for the nuclei of origin of the cranial nerves, causing partial or complete paralyses, vaso-motor and secretory disturbances; such as, loss of accommodation, dilatation of the pupils, ptosis of the eyelids, diplopia, dryness and redness of the buccal and pharyngeal mucous membranes, suppression of the secretion of the

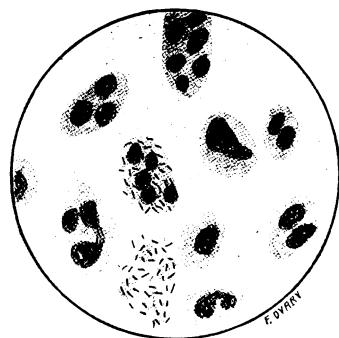


Fig. 33.

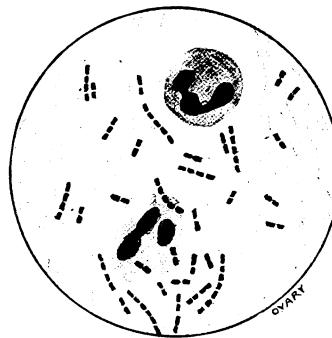


Fig. 34.

Fig. 33. Koch-Weeks Bacillus in the Exudate of an Acute Conjunctivitis, the Bacilli are seen mostly as Cell Inclusions of the Leucocytes. (Phagocytes.)  $\times 1000$ . (Modified from Frieburg.)

Fig. 34. Morax-Axenfeld Bacillus or Diplobacillus of Subacute and Chronic Conjunctivitis in the Purulent Exudate of a Chronic Conjunctivitis.  $\times 1000$ . (Modified from Macé.)

saliva and aphonia. Sometimes there is vomiting and diarrhoea, sometimes constipation. Often there is retention of urine. The sensorium is not affected, and the sensibility of the skin remains intact. Usually there is no fever, and when it is present it is secondary; caused by the constipation. If the patient has absorbed a large amount of the toxin he dies with the symptoms of an acute bulbar paralysis.

The *Bacillus of Influenza* (Pfeiffer, 1892) (Fig. 32), exists in the mouth, nasal secretions and respiratory tract of influenza patients, persists in the sputum for some weeks after recovery, and remains

for a long time in chronic lesions, as in tuberculosis of the lungs. It has not been satisfactorily proved that this bacillus is the causal agent of influenza, although Meunier has found this micro-organism (four times in eight) in the blood of influenza subjects, and Ghedini during the course of an epidemic of influenza discovered its presence 64 times in 100

in the blood of the median basilic vein, and 57 times in 100 in the material obtained by puncturing the spleen, and Rosenthal has found Pfeiffer's bacillus in the blood of the heart. Pfeiffer, however, never found his bacillus in the blood of persons having influenza. This micro-organism may cause, as a complication of influenza, pleurisy, meningitis and periorchitis (Meunier). Investigators have endeavored, without success, to find Pfeiffer's bacillus in cases of epidemic influenza, caused by the *Micrococcus catarrhalis*, *Pneumococcus*, etc. Pfeiffer could not find his bacillus in subjects having influenza during the epidemic in 1899. Besson, during an epidemic in Rennes in 1897-1898, found this micro-organism

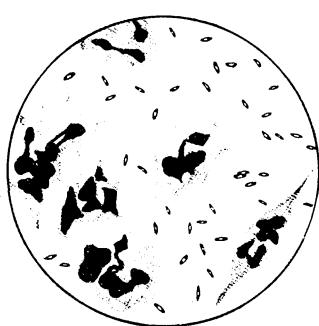


Fig. 35.

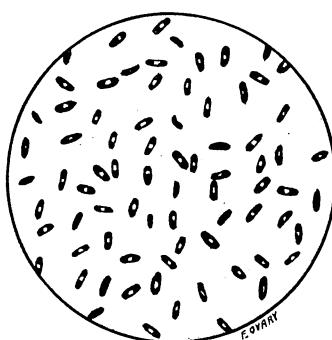


Fig. 36.

Fig. 35. Bacillus of Pertussis and Leucocytes in the Sputum. (Bordet and Gengou.)

Fig. 36. Bacillus Pestis. (Modified from Yersin.)  $\times 1000$ .

ism in only eighty per cent. of the cases examined. In influenza, especially in the pulmonary lesions, other pathogenic micro-organisms are met with, particularly the *Pneumococcus* and *Streptococcus*. The *Bacillus* of influenza, or an organism closely resembling it, has been found in cases of pertussis and in bronchopneumonia and in healthy persons.

The Koch-Weeks Bacillus, or the *Bacillus* of

**Bacillus of  
Koch-Weeks.**

Acute Contagious Conjunctivitis (Koch, 1883) Weeks, 1890) (Fig. 33), is the cause of a highly contagious form of conjunctivitis.

The Morax-Axenfeld Bacillus or the *Diplobacillus* of Subacute and Chronic Conjunctivitis (Fig. 34), described by Morax (1896) and Axenfeld (1897), is a large diplobacillus which is found in the conjunctival secretion, either free or within the leucocytes.

The *Gonococcus*, *Pneumococcus*, *Bacillus* of *Influenza*, *Bacillus diphtheriae* and the *Streptococcus* can cause a conjunctivitis.

**Bacillus of Pertussis.**

The Bacillus of Pertussis (Fig. 35), discovered by Bordet and Gengou (1906), in the sputum of children suffering from whooping cough, is thought by them to be the probable cause of this disease.

Seiffert has found this Bacillus of Bordet and Gengou in twelve of the sixteen cases of pertussis examined by him.

Reyher has shown that the stratified squamous epithelium covering the vocal cords and arytenoid cartilages is literally filled with these bacilli. This observation, if it is verified, explains why these two places are the places where the reflex is produced, which brings on the spasmodic attacks of coughing characteristic of the disease.

A number of experimenters have shown that intratracheal inoculations with this micro-organism in monkeys and young dogs causes a syndrome which closely resembles that of pertussis. The serum of patients having pertussis always fixes strongly the complement when applied to this bacillus, but does not always agglutinate the bacillus.

The serum of a horse immunized with cultures of the Bacillus of Bordet and Gengou, even when diluted to 1-5000, agglutinates strongly this micro-organism.

Porcelli has found this Bacillus of Bordet and Gengou in every one of the twenty cases of pertussis examined by him, and has also seen this micro-organism within the epithelial cells of the mouth.

This micro-organism can be easily differentiated from the Bacillus of influenza and its congeners which have been described by Jochmann and Krause, Czapelewski and Hensel.

Fränkel, Klimenko, Metchnikoff, Martha Wollstein and Finizio have confirmed the work of Bordet and Gengou on the Bacillus of Pertussis.

**Bacillus Pestis.**

The Plague Bacillus, Bacillus Pestis (Yersin and by Kitasato in 1894) (Fig. 36), is present in both the ganglionic or glandular, and pneumonic type of plague.

In the glandular form of plague, this bacillus is met with in the pus from lymph nodes, at times in the blood and more rarely in the feces. In the pneumonic type the micro-organisms are observed in the lymph nodes, even when there are no buboes, often in the blood, and always in the sputum in enormous numbers. The bacilli have been discovered in the sputum eight days after devervescence, and then it was possible to prove their presence only by inoculation, and their virulence was much attenuated. This micro-organism has been found in the sections made from and the juice obtained from the lung and spleen. The infectious droplets discharged in coughing and the sputum of pneumonic plague patients is extremely infectious. In epidemics of the plague a large number of animals are infected at the

same time as man. "The rat is the animal usually first infected. The plague, which is first a disease of the rat, soon becomes a disease of man" (Roux and Yersin.) The plague is transmitted from rat to rat, and from rat to man, through an intermediary organism, the flea. The *Bacillus Pestis* is contained in the flea's stomachal tube, and, after the death of the rat, the fleas leave its body. The fly may also play a part in the propagation of the plague, for the plague bacillus has been found in the bodies of dead flies (Yersin). The plague is rarely contracted by way of oral cavity. Wilm, however, cites a case where intestinal symptoms were marked showing at autopsy a "buboe" of the mesenteric lymph

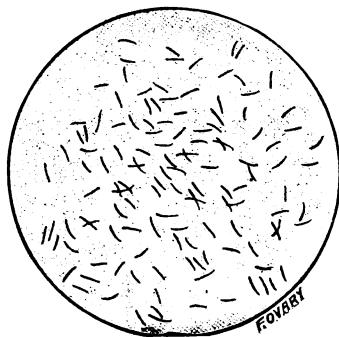


Fig. 37.

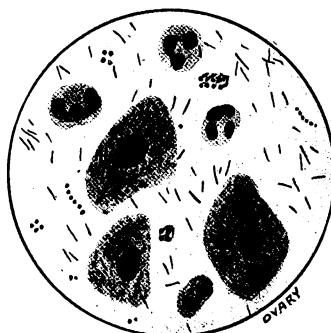


Fig. 38.

Fig. 37. *Bacillus Mallei*.  $\times 900$ .Fig. 38. *Bacillus Tuberculosis*, together with Streptococci, Sarcinae, Leucocytes and Desquamated Epithelia in the Sputum.  $\times 1000$ . (Modified from Macé.)

nodes. Klein and Simpson have shown that domestic animals and rats may be easily infected by the ingestion of food contaminated by the *Bacillus Pestis*. The plague bacillus conserves its activity in external media, in the soil of an infected locality (Yersin), in the dead bodies of rats for several weeks (Maassen) and in drinking water for about a month (Inghillori).

**Bacillus Mallei.** The *Bacillus Mallei* (Löffler and Schütz, 1882) (Fig. 37), rarely produces glanders in man, although cases are on record where veterinarians, men about

horses and laboratory workers, have been infected; the latter by means of fresh cultures. The nasal mucous membrane seems to be the place of predilection (nodules and ulcers), then the lymph nodes and the viscera, particularly the lungs and genital organs. The probable manner of infection is through some scratch or break in the skin. Ingestion of meat from animals afflicted with glanders or inhalation of the bacillus does not appear to cause the disease. It attacks most frequently the solipedes.

**Bacillus  
Tuberculosis.**

Villemin (1865) showed that tuberculosis was a specific inoculable disease, and Koch (1884) proved that the Bacillus Tuberculosis, or Bacillus of Koch (Fig. 38) is the cause of both human and animal tuberculosis. The tubercle bacilli found in man and different animals are known as the bacilli of human, bovine, avian and piscine tuberculosis. Almost every animal species is susceptible to this disease. In spite of the opinion of Koch, the greater number of bacteriologists, basing their views upon a large number of facts, appear to consider the bacillus of bovine and human tuberculosis as identical. Each of these bacilli is best

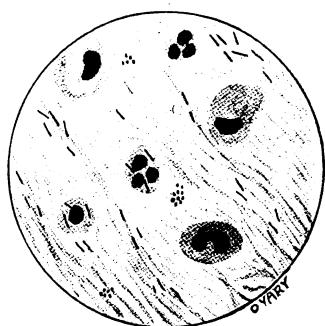


Fig. 39.

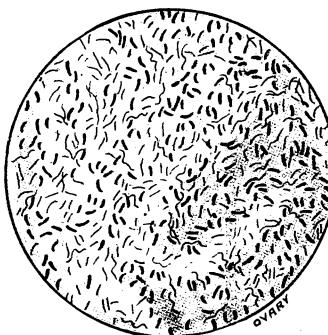


Fig. 40.

Fig. 39. Bacillus of Leprosy, Coccoi and Leucocytes in the Nasal Mucus.  $\times 1000$ .

Fig. 40. Spirillum Cholerae Asiaticæ in the Intestinal Contents of a Patient Dying from Asiatic Cholera. Two types of the micro-organism are seen: one the finer, a Spirillum, and the other a coarser, the so-called "Comma Bacillus." (Modified from Kolle and Hetsch.)

adapted to that species of animal which has acted as the host for it, but each bacillus can infect the other animal species. According to de Jong the bacillus of bovine tuberculosis seems to be more virulent than that of human tuberculosis, yet, by repeated inoculation of the goat with the latter micro-organism, it can be made as virulent for bovines as the bovine tubercle bacillus. Arloing, Dor and Courmont have contended for a long time that the bacilli of human and avian tuberculosis were similar and the result of experiments by Nocard, M. Koch and Lydia Rabinowitsch seems to confirm this view, and to prove that the bacillus of avian tuberculosis is only a variety of species of the Bacillus of Koch. Straus and Gamaleia, however, think that avian tuberculosis is caused by a special micro-organism.

Moeller, Sorge and Suess have succeeded in transforming the Bacillus Tuberculosis of man into the piscine type. Besson contends that the different tubercle bacilli have the same origin, and that an habitual



parasitism in different animals has created different varieties. Such investigators as Arloing, Wolff, de Jong, von Behring, Moeller, Spronck, Krause, etc., agree upon the identity of the tubercle bacilli.

Man contracts tuberculosis either by the respiratory or digestive tract, or less frequently by the genito-urinary tract or skin. The tubercle bacillus is found in every manifestation of tuberculosis in man. It is held by von Behring that the infection takes place through the digestive tract, and the pulmonary tuberculosis of the adult is the evolution of the intestinal tuberculosis contracted in early life. This view seems to be confirmed by the French School, led by Calmette and Guérin, who, from numerous experiments by themselves and others are convinced that pulmonary tuberculosis which has not been produced by experimental infection of the lungs (insufflation of trachea, bronchi and lungs with material containing tubercle bacilli in suspension) always comes from an initial infection of the intestinal tract during the first years of life, which in the adult may leave no trace of its presence either in the mesenteric lymph nodes or abdominal viscera. According to Arloing, the so-called surgical types of tuberculosis (as distinguished from visceral tuberculosis, viz., tuberculosis of the skin, serous membranes, lymph nodes, joints, etc.), are caused by an attenuated type of the tubercle bacillus. Krompecher and Zimmermann are of the opinion that the tubercle bacillus conserves its entire virulence in these localized lesions, and that the slight tendency to extend results either from a particular resistance on the part of the invaded organism, or from the fact that the *Bacillus Tuberculosis* is influenced in its growth by the particular place in the organism where it endeavors to grow, or because the invading bacilli are few in number, and grow poorly in an unfavorable locality. Pyogenic micro-organisms are frequently associated with the tubercle bacillus in tubercular lesions. In tubercular lung cavities, the *Staphylococcus pyogenes*, *Streptococcus*, *Pneumococcus*, *Pneumobacillus*, *Bacillus of blue pus*, *Micrococcus tetragenus* and putrefactive micro-organisms are to be found in addition to the *Bacillus of Koch*, and the hectic fever is believed to be caused by the absorption of the toxins of these micro-organisms. In a tubercular adenitis or meningitis, etc., aside from the *Bacillus of Koch*, *Pneumococci*, *Streptococci* and *Staphylococci* may appear.

**Lepra  
Bacillus.**

Leprosy is caused by the *Lepra Bacillus* (Hansen, 1879) (Fig. 39). The inoculation of animals with the *Lepra Bacillus* or with tissue taken from leprosy nodes was unsuccessful, excepting in those cases where Nicolle succeeded in infecting apes.

The *Lepra Bacillus* is found most frequently in the superficial connective tissues of the body (nose, mouth, skin), rarely in the organs.

causing lepra nodes (lepra nodosa) and in the connective tissue sheaths of nerves (lepra anaesthetica) producing anesthesia and trophic disturbances.

Striker, from an observation of 153 cases of leprosy, says that: "the primary infection takes place through the nose; the clinical symptoms begin there; the relapses of the disease begin with nasal symptoms (epistaxis, congestion of the nasal mucous membrane, a sensation of heat, etc.), in incipient cases the Lepra Bacilli are first found in the nose, and remain latent there for long periods, and the nasal lesion, which is characteristic and entirely different from all other lepra lesions, is the only constant one in both the nodular and anesthetic forms of leprosy."

*In a suspected case of leprosy the nasal mucus should be examined to determine the presence of the Bacillus of Leprosy.*

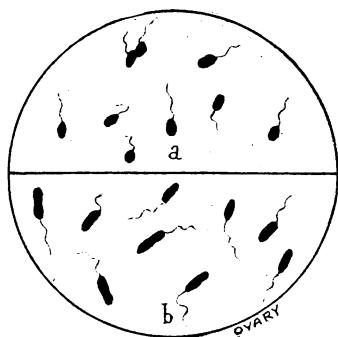


Fig. 41.

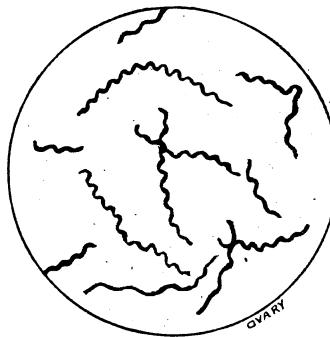


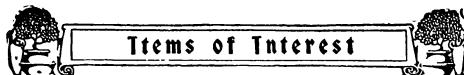
Fig. 42.

Fig. 41. *Spirillum Cholerae Asiaticæ*. (a) with a short flagellum, (b) with a long flagellum.  $\times 1500$ . (Modified from Kolle and Hetsch.)

Fig. 42. *Spirillum Cholerae Asiaticæ*. Involution forms from an old bouillon culture. (Modified from Kolle and Hetsch.)

**Spirillum Cholerae Asiaticæ.** The Spirillum of *Vibrio Cholerae Asiaticæ*, called by Koch the "Comma Bacillus" (Koch, 1883) (Figs. 40, 41, 42), is the cause of Asiatic Cholera and is encountered in the contents of the intestines and dejecta of cholera patients. It localizes in the intestines and produces there a toxin which gives rise to the symptoms of the disease. The Spirillum Cholerae is polymorphic, and there exist a number of varieties more or less like the type described by Koch. In the absence of an epidemic of Asiatic cholera it is difficult to actually determine the presence of the Spirillum or Comma Bacillus of Koch, as not infrequently micro-organisms, morphologically analogous, if not identical with this micro-organism, are found in water and in the feces of healthy persons.

When Koch, returning from Egypt and India, where he had been



sent by the German Imperial Government in 1883 to investigate the cause of Asiatic cholera, alleged that its causal agent was the *Comma Bacillus*, Pettenkofer, of Munich, doubted Koch's statement, and to prove that it was or was not true swallowed part of a culture of this micro-organism and escaped the disease. Some of his assistants did the same thing, and did not contract cholera. Metchnikoff also swallowed a portion of a culture of these micro-organisms, and escaped having cholera. But of twelve other assistants in the Pasteur Institute at Paris, who had swallowed portions of cultures of the *Comma Bacillus* of Koch, one conducted true Asiatic cholera with violent symptoms which nearly caused his death.

Emmerich, who also swallowed some of a pure culture of this bacillus, contracted a most severe attack of Asiatic cholera.

Oergel, an assistant at the Institute of Hygiene at Hamburg, while handling some cultures of the *Spirillum Cholerae* in the laboratory of this institution accidentally infected himself and contracting Asiatic cholera died in four days.

After the results of some of these experiments made with pure cultures of the *Spirillum Cholerae* upon the experimenters themselves no competent scientist doubted the specificity of the "Comma Bacillus of Koch."

I am indebted to Dr. Francis O'vary for the drawings of the cuts.





## The Cuttle Telescopic Porcelain Crowns—Modified.

By MONTAGUE HART TUTTLE, D.D.S., Atlanta, Ga.

I believe the wideawake, progressive and thinking class of men constituting the dental profession of to-day are the most earnest, sincere and useful body of men in the world. I believe every reputable dentist is doing his utmost to cope with the present demands upon him and seeking better methods to-day than he found yesterday. No class of men have done more good for humanity than the real thinking dentist. To enumerate the demands upon the present-day dental surgeon would fill a volume. This article will deal with one, of evergrowing interest—the demand for conserving the stumps of broken-down teeth. I do not believe there is an honest, thinking dentist in the profession who would amputate carious crowns for pivot work if he could avoid this disaster in a successful manner.

In August, 1912, the ITEMS OF INTEREST published an article on telescopic porcelain crowns, that seemed at that time to the author a satisfactory method of escape from crown butchery; but, like the old wooden peg crowns, acting on the principle of "spit and swell," those platinum base crowns needed modification.

To-day, if we have any regard for time and success, we will abandon platinum caps and making motled facings on this stuff forever. Let the dead past bury the dead, and let us rise to the highest sense of justice to ourselves and our clientele. Let us cast our crowns. Let us prepare the stump, take an impression, dismiss the patient, and cement the crown over the stump at the next sitting, the same as we would an inlay. Let us make our crowns outside of the mouth and avoid torturing wire

measures, hammering bands into delicate tissues and painful articulations. Above all, let us save the stumps and avoid injury to the roots.

We know that the main strength of a tooth is in its crown body—a crown telescoped over this portion would be as strong in attachment as the uninjured tooth. A pivot crown is no stronger than the metal pin that maintains it in the weakened root.

Again, the present-day demand is to avoid cutting off sound teeth for abutment construction. Who will continue to destroy the crowns of faultless natural teeth to substitute anchorages for bridgework?



FIG. 1.



FIG. 2

There is a way out of it all. It is simple and can be done with dispatch. It has no secrets nor patent processes. Anything I might have that does nobody else any good can never be of any value to me. To prevent any manufacturer or individual from patenting these crowns described in this paper I hereby deed this work to the dental profession, with all the power vested in me as the inventor.

Prepare the stump the same as for gold crowns.

**Technique of Construction.** To allow for thickness of thin porcelain facing, grind the labial or buccal surfaces well back. If the pulp is involved, extirpate and fill canals.

The technique for constructing crowns for the anterior teeth is practically the same as for the posterior teeth. Take two plaster impressions of the stump and contiguous area. Run models in hard plaster.

From one model trim out a plaster root underneath and continuous with the stump to be crowned, being careful to preserve the axial surface of the stump as far up on the plaster root as the crown should be set without impinging. Fig. 1 A illustrates a plaster root with stump. These plaster roots are provided to individualize the stump and to facilitate holding and manipulating wax over stump, as will be described hereafter.

The other model should be reserved for trying on and aligning the facing, preparatory for final trying on the stump in the mouth.

The shade of the teeth is secured, and any ordinary facing of approximate size is selected. The pinless facings can be used to best advantage. The groove in the steel facing facilitates concaving, and what is left of it after grinding forms a depression for an important anchorage. The facing is ground the proper length and its rear surface con-

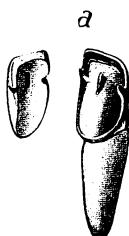


FIG. 3.



FIG. 4.



FIG. 5.



FIG. 6.

caved by grinding with clean, smooth stones. The facing should be concaved until it fits snugly onto the labial or buccal surface of the stump in good alignment with contiguous teeth. To attain the best possible anchorage, transverse grooves are cut into the concave surface of the facing with a knife-edge disc. These grooves should be cut at an acute angle to the vertical plane of the facing. The process of concaving and working the facing into a finished product is illustrated in Fig. 2. The facing, A, has been selected with longitudinal groove baked into its body; B illustrates the concaved surface with a portion of the groove left near cutting edge, this portion of the groove serving as an important anchorage; C illustrates the completed facing with two transverse grooves cut into the concaved surface. These grooves may be cut through the mesial and distal walls of facing, which will form lugs in the seat of the completed crown, Fig. 3 A, and appear as gold fillings on the labial or buccal surfaces of facing when cemented into seat, as clearly illustrated in Fig. 3 B. Manufacturers should provide these facings, although the operator may prepare one in ten minutes.

The acute angle of the several grooves worked into the concave surface of the facing, reproducing lugs in the seat at an acute angle to the

vertical plane of the facing, seats and holds the facing in a substantial manner when cemented and prevents any and all strain on the cement joint.

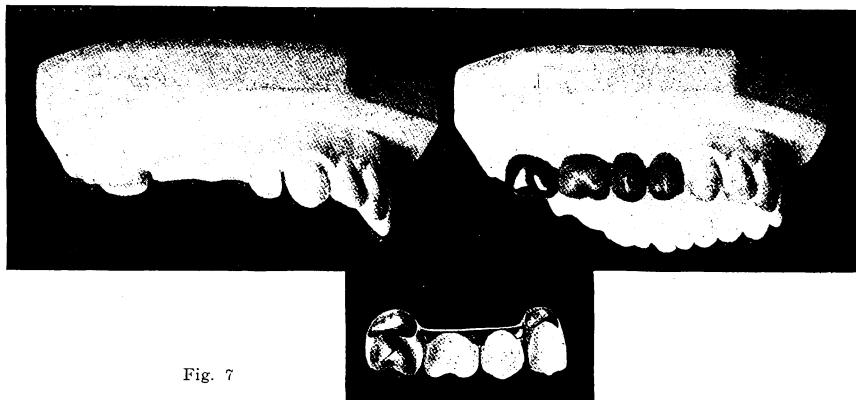


Fig. 7



Fig. 8.

Reverting to the plaster root and stump to be crowned, a strip of pink paraffin and wax is cut long enough to wrap around the plaster stump and lap well on labial or buccal surface. To prevent adhesion the plaster tooth is moistened thoroughly before the wax is applied. The warm wax is worked into a cap over the stump into approximate form, Fig. 1 B. While the wax is warm the prepared facing is moistened to prevent adhesion, and pressed into the labial or buccal aspect of the wax cap and forced snugly into approximate position. In crowning anterior teeth, the wax cap should be molded accordingly; crowning posterior teeth the wax cap should be molded according to the form of

these teeth. The manufacturers could make assorted wax forms for this purpose.

The wax cap with seated facing is transferred to the reserved plaster cast and tried over plaster stump. Here the cervical margin should be

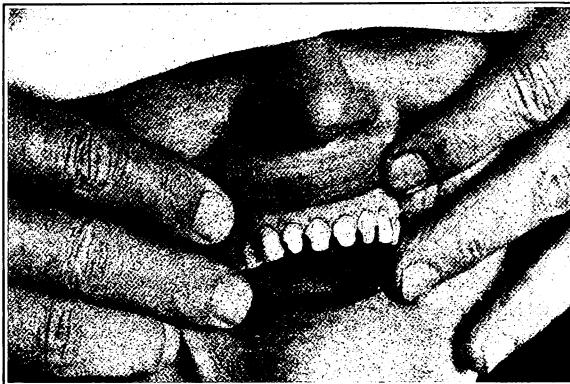


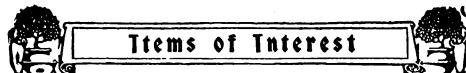
Fig. 9.



Fig. 10.

carefully trimmed and the facing aligned with contiguous plaster teeth. By appointment, the wax cap with seated facing is transferred to stump in the mouth and subjected to final adjustment, alignment and articulation. Perfect articulation for posterior crowns is obtained by having the patient bite into warmed wax caps several times.

The wax cap is removed from the mouth, the facing is removed from the seat with a sharp-pointed instrument, the cap is invested and a casting made of any suitable metal, preferably of gold. Figs. 4, 5 and 6



are completed crowns for anterior and posterior teeth. Note the perfect joint with the stump and the facing. A crown may be cast from aluminum and faced with De Trey's synthetic porcelain. Assorted lead forms may be used for impressing the seat into wax forms for this kind of work.

Figs. 7 and 8 illustrate anterior and posterior bridges constructed without injury to the natural crowns. Figs. 9 and 10 illustrate the condition of the teeth before and after applying four incisor crowns two years ago. These crowns to-day are as perfect as when set in the mouth.

Every detail in the construction of this work is precise and mathematically correct. The joint over the stump and the seat for the facing being cast insures absolute accuracy and the highest standard of work. It is important to note that the facings can be re-cemented if unseated. The old pin facings have the disadvantage of breaking away from the backings, and are always badly replaced. One other important feature is the absence of the anchor post, which renders free access to canals in case of need.

The application of these crowns spares the operator all the time and labor of furnace work, courting pleasure instead of dread, as has been the experience of the past.

---

## Zinc Dies Direct from Impressions.

---

By MR. E. SCHER.  
*Senior Student, Tufts College Dental School.*

---

I am describing a method of obtaining a zinc or preferably a Babbitt's metal die, when a swaged metal base is required for a denture, direct from the impression. It has been especially useful to me in cases where deep undercuts are present and good cores more or less difficult to procure.

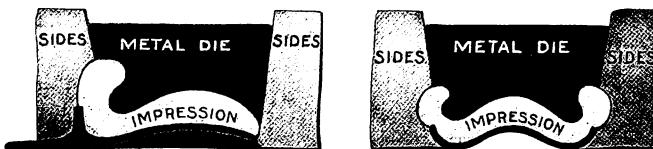
This method may have been employed long before I thought of it and it may possibly have been published, although I have never seen or heard of it. It is entirely original with me and I ask to be forgiven if I infringe upon someone's idea.

The impression of the mouth for which a metal base is to be swaged is taken in a mixture of plaster of Paris two-thirds, and pumice one-third; instead of pumice any other suitable investment material may be used. If undercuts are present and the impression breaks on removing from the mouth it is best to cement the pieces into place.

If possible the impression is removed from the tray, although it is not necessary to do so.

Then, using the same material as has been used for taking it, sides are built up from the impression at slightly obtuse angles and high enough to allow for a fairly thick die.

When hard, this is thoroughly dried, and the die metal having been melted, is poured into this mould. When the metal has solidified, and is



cool enough to be handled, the mould and impression are broken away and a perfect metal model is thus obtained, from which a lead or any other counter-die may be procured and the plate swaged as usual. If two dies are needed, two impressions must be taken.

---

### Dental Prosthesis.

---

By J. P. RuyL, D.D.S., New York.  
*Read before the Second District Dental Society of New York, December, 1913.*

The oft-repeated remark that the Gysi system is too complicated, that it takes too much time to warrant a small fee of ten, fifteen or even twenty dollars is only too true, but one should get at least twenty-five dollars per plate. This fee might be a little difficult at first until you can show that you are giving and doing something far superior to anything the old method ever produced and the result will be most gratifying to yourself and patients, for you will not be bothered by their returning to have a sixteenth or quarter inch cut off here or there; because this cutting off always entails a chance of not getting at the right place, or of teeth tipping when the patient eats, or of teeth dropping every time he laughs or talks, or of innumerable other complaints that make plate-making so difficult. By the Gysi method you will have an absolute knowledge of what you are doing and why you are doing it.

The average plate turned out to-day is not as good, or is no better, than that of forty or fifty years ago, and when I say not as good, I mean, if any of us were called upon to grind and articulate a full gum-section denture, the mechanical construction would not come up to that of the older practitioners. True this kind of denture is not in use as much as formerly, and if it *were* necessary for a patient, the dentist would be

very apt to suggest a different one of plain teeth, not because he thought the plain teeth better, but because he knew he could not make the other.

Too much prosthetic work is given to outside men. An office with a good laboratory equipment is an exception to the rule. More often you will find merely a modern bench behind some screen in an operating room. Impressions and bites are taken at

**The Wrong Method in Prosthetic Work.** the same sitting and given to the mechanical man. Without ever seeing the patient he is told to select teeth for a person twenty-five or seventy-five years old, as the case may be, and set them up for trial. Small wonder is it that we get the results we do and that so many dentists will not undertake prosthetic work at all. I have had occasion to visit a few laboratories and have seen some of the casts that dentists have sent in to be made up; and how they were in any way able to get the finished production into the mouth, or make it stay there long enough for the patient to leave the office, to say nothing of the occlusion, is a wonder to me. And when this work has gone wrong, as it usually does, the mechanical man is expected to do it all over again without extra charge. Not only must these mechanical men be mind readers, but expert mechanics as well, to get any results whatever. I have never been able to figure out, how the small prices charged for plate work originated. All other work, which does not take as long to do, is charged for at a rate out of all proportion to that of prosthetic work. We get much more for our gold inlays than for the hammered gold fillings which take longer to do, and five times as much as for a plate, always I mean in proportion to work done, and yet there is more skill required in the latter, more restoration made, and better results from a standpoint of health for the patient.

The dentist may occasionally turn out a creditable plate, but as he can never be sure of results, he feels very much relieved when one is good. He is never certain when approaching his patient with a new plate that it will stay in place, that the occlusion, size and color will be good, that the plate will balance when in lateral occlusion and that he has properly restored the mouth which he was called upon as an expert to bring back to normal conditions. If by chance and good fortune he has accomplished all this with a full upper and lower he is immediately sorry that he is not getting three times the amount for it, and would have asked for that in the first place if he had known how it would have turned out. That this condition exists will be admitted by most of us, and it is a very sorry plight in which to find ourselves. A little more thought, and a little more time spent at our laboratory benches, if only in the setting up of teeth, leaving the rest to outside men, would improve conditions a great deal.



**Fault not with  
the Manufacturers.**

Manufacturers are often blamed for giving us beautiful shaped teeth, all of one color from which to select, and essayists and speakers who deal with this topic frequently complain that it is impossible to make an artistic selection from their stock. It must be understood that the manufacturer is in business to sell those teeth which will satisfy the largest demand; and those which satisfy that demand are the best for him to produce. The manufacturer would as willingly make a natural-form tooth as a beautiful-looking one, and would not presume to force upon the market that for which there would be no demand. Natural teeth are not uniform in color or shape and yet we ask for a set of fourteen, all symmetrical and beautiful in color, and complain that that is all we can get. In order to standardize their product, the manufacturer must necessarily have some rule for combining the sets; and these combinations are made up by practical men who have learned by experience what dentists buy. It was never intended that these combinations of sets would meet with absolute approval of every dentist, but simply to supply the greatest number. Nor is it reasonable to expect teeth to be made in accordance with the innumerable stages of wear and discoloration found in the mouth. Individual cases always require individual effort and any deviations must be made to suit the case in hand. With modern appliances, a dentist can change the shape and color just as nature does, by showing wear and discoloration. This is a question wholly with the dentist and not with the manufacturer. If the bicuspids and molars are out of proportion to the incisors, he can select any other combination needed; I would rather make a full denture from a miscellaneous selection than from any of the usual combinations offered in the depots, and I never think of making a full denture without splitting up at least three sets of teeth, especially for the color effect.

Only a comparatively small minority seems to be aware of the great possibilities of art in prosthetic dentistry, but anyone must see the present deplorable condition of this branch of our work, and all must sincerely desire to have it remedied. With the new anatomical molds and those that will soon be on the market gotten out by Dr. Gysi, we will have ample opportunity of making a fifty years' advance in one stride, and as soon as the public is made familiar with the new order of things, so much sooner will it show its willingness to pay a fee in proportion to the benefits which it will receive. Natural teeth are not uniform in color nor shape. A decided difference exists. Each case requires individual selection, and dentists who learn this will soon appreciate their efforts, and do away with that stereotyped, even whiteness we so often see. The

same holds good for straight-pin teeth so often necessary in strengthening lower dentures. If the demand existed the teeth would soon be forthcoming.

**Duties of the  
Profession in  
Prosthodontia.**

Artistic prosthesis is in the hands of the profession, and its advancement depends upon the education of the public. If the profession does not demand what a few idealists think it should demand, the reason lies with the profession.

Able men have called the attention of dentists to the necessity of exercising more skill in the construction of dentures, yet few have made any attempt at it. The reason is undoubtedly due to the fact that too much time would be consumed for which they would get poor remuneration. Of course, this could only be remedied by creating a demand for artistic service, a very great obstacle to overcome; for it is not easy to convince an elderly lady who has fully made up her mind that she wants beautiful, regular, white and small teeth, that she needs the direct opposite. But once you can demonstrate your ability to judge for her she will say: "Doctor, I think I will leave it entirely in your hands." Nor should the dentist allow the patient to influence his arrangement of color or size. Patients often have their own ideas on the subject, so much so that a dentist will make changes that he knows to be wrong. He should first consider how to restore the natural appearance of his patient, and this can only be effected through a knowledge of temperamental characteristics. Age and sex will, no doubt, modify the requirements, but the basal fact on which to work is temperament, and non-ability to recognize it will result in failure from an artistic standpoint. Absorption of the process and tissues causes a great change in the face, and a selection and arrangement which will restore the features with all their powers of expression so as to defy detection is one of the most difficult and satisfying adaptations of the dental art. A dentist must familiarize himself with the different characteristics which distinguish one temperament from the other. Charts of this kind have been devised and published in the *American Text-Book of Prosthetic Dentistry*, and by means of these charts it is easy to determine the character of artificial teeth required.

**Changes After  
Extractions.**

Following extractions, an upper jaw becomes smaller through the absorption of the external and internal plates, notably the former. Shrinkage is greatest in the breadth, making it necessary to use smaller molars than the originals in order to give play to the tongue. If, for giving fullness to the cheeks, an overbroad selection be made, they will overhang the ridge, causing undue leverage, and will often break the plate. Another change following extraction is the curve of

the gum-line. In a natural set, with all the teeth in place, the line curves down from the cuspid to the second bicuspid and then up again to the last molar. After extraction the reverse takes place. A line runs up from the cuspid to the second molar, making it necessary to select longer bicuspids and molars than are found in natural dentures. These facts are necessary for consideration in order to make an intelligent selection of porcelain teeth. It does not matter how expert a man may be mechanically if teeth entirely unsuited to a particular case are chosen the denture will be unsatisfactory. The form of tooth required must also be determined; whether the ridge-lap should be long or short; whether the bite be long or short; whether the tooth should be large, small, medium-short, broad or narrow. Each of these things is essential and will do away with many complaints of broken plates and broken teeth, due to faulty occlusion of teeth that were not selected to stand the strain for which they were intended.

**Anatomical  
Articulation.**

The success obtained in making an anatomical denture is in proportion to the dentist's ability to record each individual movement of the jaw, and it is only within recent years that such movements could be recorded with any degree of accuracy. Dr. Gysi, together with others, has made this practicable. He has worked out a scientific apparatus which if followed carefully cannot help but give excellent results. While it looks complicated alongside of our old-fashioned plain line articulator, I believe if the technical parts were clearly outlined and all theory eliminated except that necessary for working out the details, a good knowledge could be obtained if one gave it reasonable thought. It is, however, necessary to follow the steps in their order; otherwise inaccuracies will arise to lower the final result. The cost of the apparatus might prevent many from taking up the work, but I am satisfied that the time will come when every man will adopt it or fall behind.

The old methods are wrong and the sooner we let them go the better. The anatomical method is right, logically and scientifically. There should be as much progress in prosthetic work as there is in the other branches of the profession.

**Plain Line  
Articulator.**

Unfortunately this seems to be the prevailing articulator used in setting up teeth, and while some of them look well on the articulator, the hinge movement is the only one we can get from it. Of course it has served the purpose for years, for the want of better, but the function of mastication was only partially restored. In the anatomical method the plates are not only balanced when in lateral occlusion, but



mastication is much easier, for you have, instead of the hinge movement, the lateral movement—the former, merely chopping the food, the latter grinding it.

Take an impression cup cut to fit the ridge all

**Upper Impressions.** around with about  $1/16$  inch to spare. Cut the cup down so as not to come in contact with the muscles,

and have it a little shorter than the end of the hard palate. The cup can be operated with or without the handle, preferably without. Warm the compound and dry the inside of cup, then mold the warm compound into a ball and heat over the flame. Press it to warm cup and mold against the sides, leaving a high cone shape in the center, place the whole mass over the flame, wet the lips with fingers dipped in warm water and press gently to place, endeavoring only to get the roof of the mouth and height of the rim. Hold the cup to place with finger and get the patient to move the lips and cheeks. Massage the cheek against the cup to drive surplus compound down and allow it to cool. Then cut off any surplus that has gone over the heel and trim the sides. Add more compound on one side at a time. Massage, and pull down the cheek muscles with impression in place. Do the same on the other side and add more compound across the heel, and heat over flame. Put it in place, then press with finger against the line of the hard and soft palate and have patient swallow, which act will determine the length of the plate and leave a mark in the compound.

Form the lower cup so that the cheeks can be

**Lower Impressions.** moved and the tongue raised without displacing the cup. Dry the cup and heat the soft compound over

the flame and place it in the cup; then heat the outer surface of the compound to a point, just before it runs. Moisten the lips and put it gently to place with the tongue raised. Hold the cup in place with one hand and massage the cheeks. Have the compound go well back on the outer rim so that it can be formed the proper length by the movements of the muscles. Then heat the inner rim one side at a time and have the patient swallow to form the impression there by the actions of the muscles; after this is done to both sides, warm again and allow the patient to form the whole inner surface by pressing against it with the tongue.

The base plate should be of a material stiff

**Ctrial Plates.** enough to retain its shape when trying it in the mouth. It should be trimmed smooth and carried

over the ridge the same as the finished plate. Between the rugæ the model should be carved deeper so that when the base plate is pressed to place it will not rest directly on the rugæ, which is soft, causing the base

plate to yield. The lower base plate should be shaped to the model in the same manner. Wax is then formed on the ridge of the base plate a little deeper than the length of the teeth should be. A line is then drawn on the cheek with a soft pencil from a point of the external auditory meatus to the lowest point of the wing of the nose. The border of the upper trial-plate should then be trimmed so that it will be on a line parallel to the line previously marked on the face. The other side of the ridge is trimmed in like manner, the eye being sufficient guide to make it level. The upper trial-plate is then returned to the mouth. The border of the lower trial-plate is softened and put into the mouth and the patient directed to close his jaws so that the hardened upper will press the lower into shape. Care should be taken that the trial-plates be so formed as to take the pressure evenly at all parts. Any uneven pressure may tilt it on one side or the other, which would make an unsuccessful finished plate. Mark the median line. (Dr. Ruyl then gave an illustrated lecture describing the anatomical articulation of teeth by Dr. Gysi's method.)





## Compromise Treatments.

By LLOYD S. LOURIE, Chicago.

*Read before the American Society of Orthodontists at Chicago, 1913.*

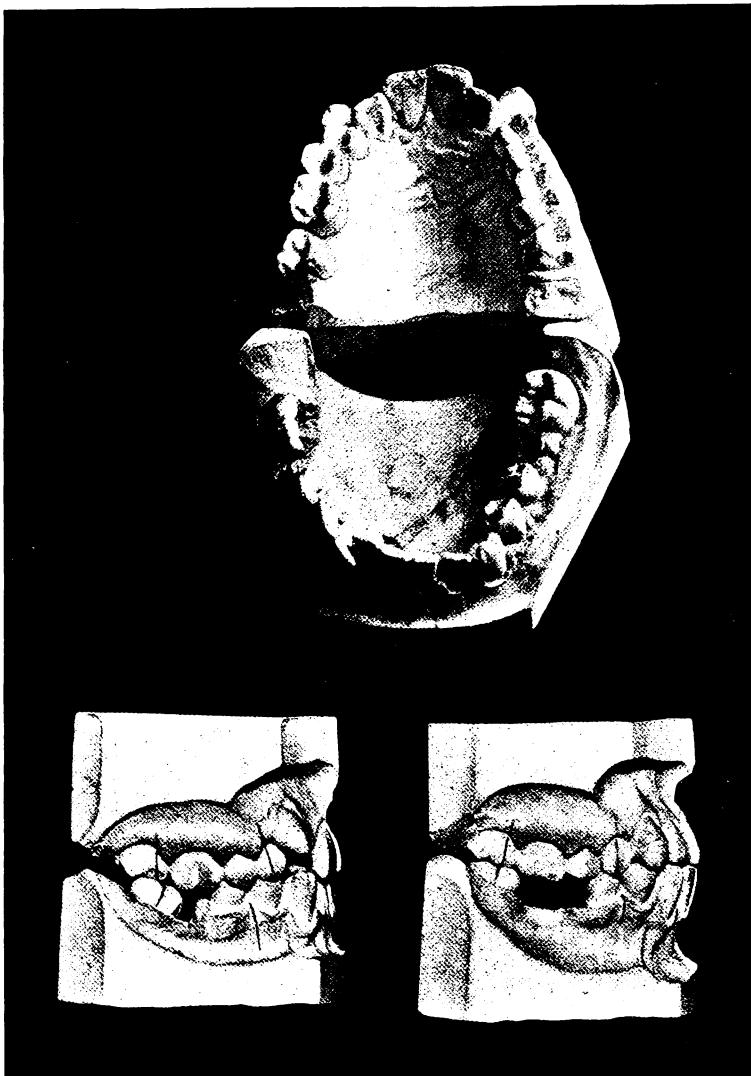
The American Society of Orthodontists has always been a staunch and ardent advocate of normal occlusion as the basis of orthodontia and as our goal in treatment. If it is to be criticised in this regard, it must be on the score that enthusiasm has caused an apparent disregard for obstacles or limitations.

From manifold and continued reports of wonderful results, many have been led to believe that all things are possible in orthodontia. Some orthodontists have even been so radical as to say that only attempts at securing normal occlusion fall within the domain of orthodontia, and that other plans of treatment are inexcusable, and even mal-practice. Several of our members, however, are of the opinion that much harm has been done our specialty, as well as the orthodontist and patient immediately concerned, by attempts at impossible or ill-advised treatment, and at the request of the chairman of the Board of Censors I present for your discussion the following questions, the idea being to develop a general discussion of our limitations.

I. Is it possible in all cases to place and retain all of the teeth in their normal anatomical relations?

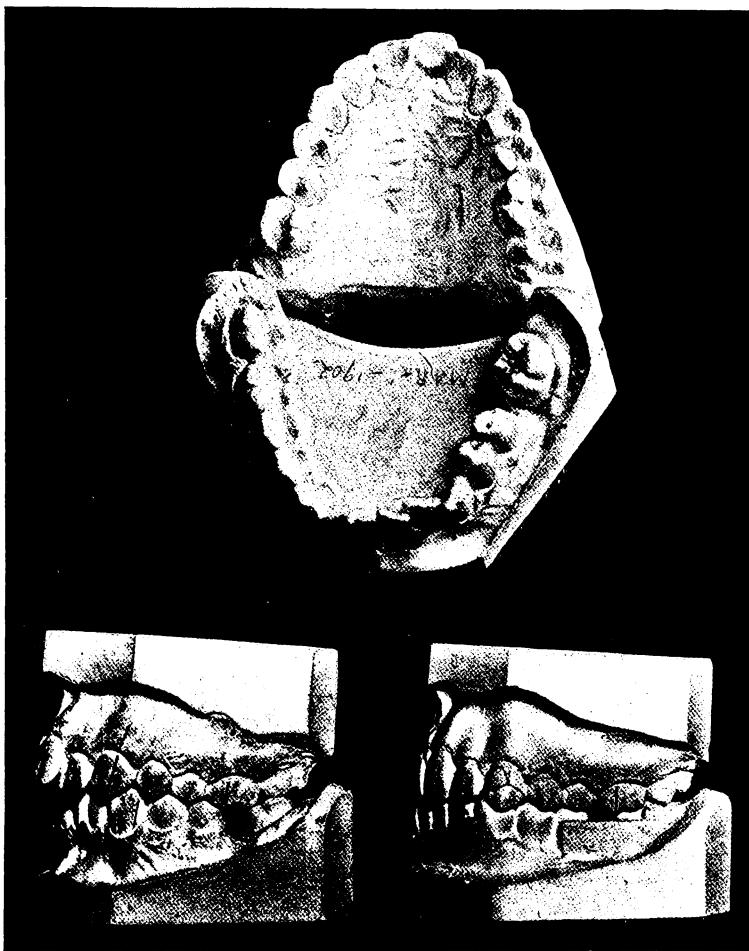
II. Even though ultimately possible, is it always advisable to attempt it?

For my part, both must be answered in the negative. When one has satisfactorily treated several cases of extensive malocclusion, he is impressed by the responsiveness or mouldability of the alveolar process



Case I.

and adjourning parts; and is led to conclude that "it is possible to move the teeth into any position desired." Sooner or later, however, we must all be impressed by the variability of these same structures. Who can say, for instance, that the alveolar process will not be absorbed and fail to be rebuilt, or that the effects of mechanical stimulation will stop at just the desired stage? I must confess my inability to do so, and when

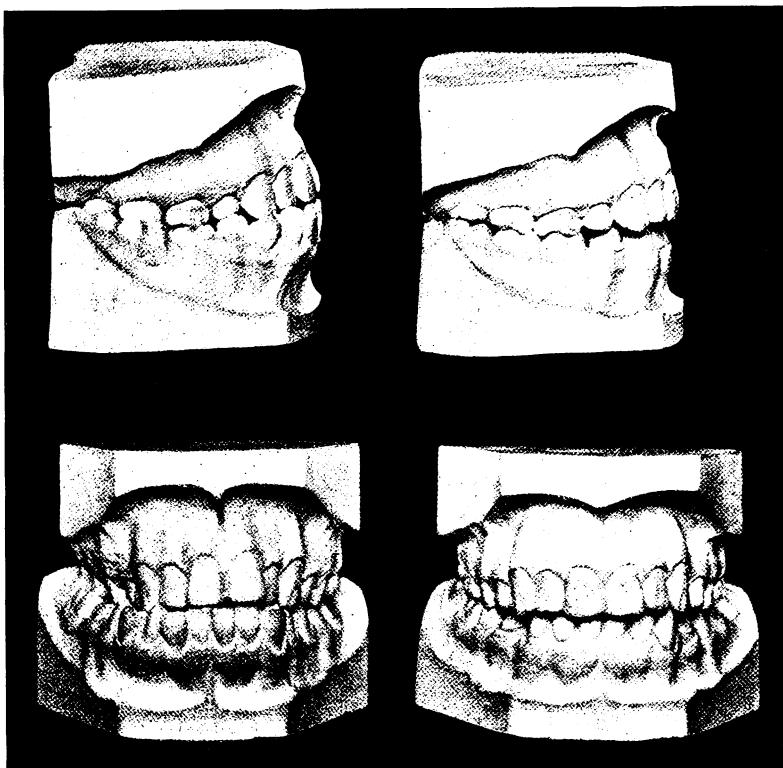


Case II.

confronted by alveolar processes and gums with atrophic tendencies, am willing to arbitrate. Also, I am keeping a "weather eye" open for the effects, on adjoining parts, of overdeveloping or overerupting second and third molars.

Supposing now that we are wise enough and skilled sufficiently to invariably secure normal occlusion with all of its accompanying utility and beauty, are we always justified in doing so? In older patients, par-

ticularly, may we not be of more practical benefit by sacrificing some of our ideals for expeditiousness and utility? Probably it will be of assistance to consider a few actual cases, occasionally taking the patient's point of view.

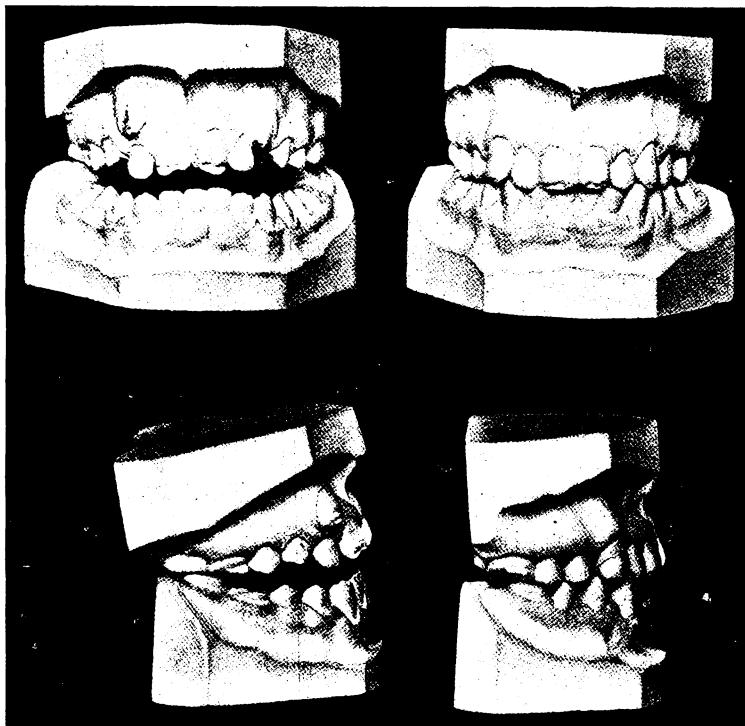


Case III.

The first two were shown to this society at the Philadelphia meeting in 1902, and I was quite proud of them, because of having accomplished something new in the attempts at restoring ideal occlusion. My purpose of moving distally molars and bicuspids to avoid extraction was successfully accomplished, but normal occlusion was not established. In fact, a better occlusion would have been obtained in each case if other treatment had been followed.

**Case I.** Age 18, young lady, small features, large teeth. Extraction of upper first bicuspids and closure of first molar spaces would have shortened and simpli-

fied treatment, as well as giving better occlusion and less danger of gum and alveolar process recession. Incisor overlap would have been better and artificial teeth would have been avoided.



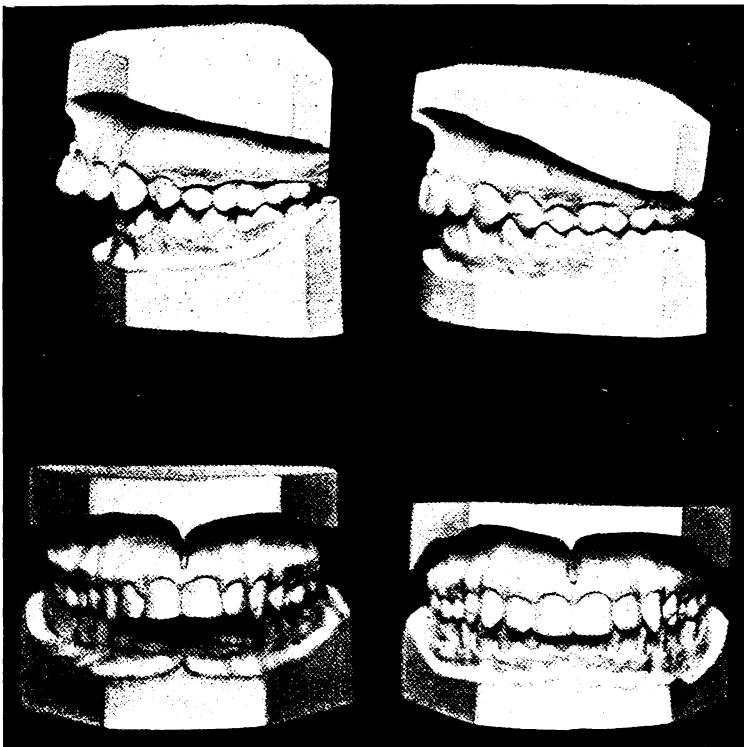
Case IV.

Age 14, girl. Early loss of upper right first molar and lower left first molar resulted in unbalancing of two arches. Left half of upper arch was moved distally to avoid extraction. Extraction of upper left first bicuspid would have allowed more satisfactory treatment for all parties concerned. Incisor overlap would have been better and a bridge avoided. Retention would have been easier. Opening of the bite in these two cases made lip closure difficult. At the time we had been led to believe that this difficulty would adjust itself with the settling of the teeth into their sockets from use, something I no longer count upon. The thing to do is to avoid opening the bite in treatment, as it will not suffice to

elevate the anterior teeth, because that makes them more conspicuous and lip closure difficult.

Age 19, young lady. Previously lost upper first

**Case III.** bicuspid and spaces entirely closed, and largely by mesial movement of bicuspids and molars. No incisor overlap. Opening upper arch for first bicuspids would have caused



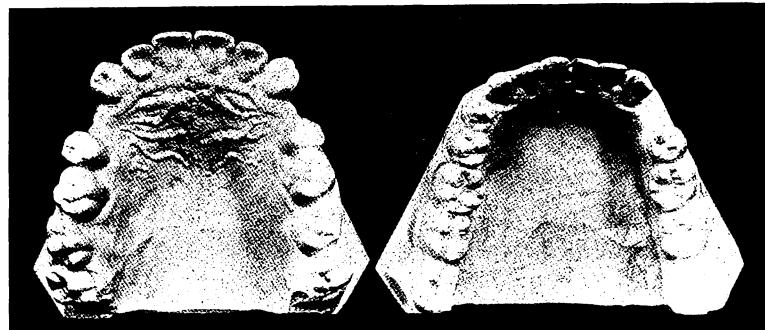
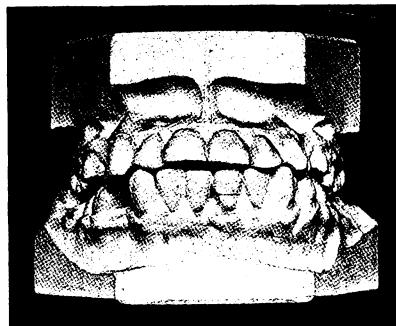
Case V.

prolonged treatment with doubtful results, especially in closing the open bite condition which probably would have resulted. Extensive disturbances of matured alveolar process might have resulted in permanent injury. All of the above and two bridges were avoided by extraction of lower first bicuspids. This was the first case in which I compromised by extraction, and there never since has been any reason for me to doubt that it was the correct procedure.

Age 16, boy. Lack of occlusal contact, except-

**Case IV.** ing second molars, due to excessive eruption of those teeth in lower arch. Treatment without extraction

Items of Interest



Case VI.

would have necessitated depressing molars in sockets or elevating all anterior teeth into unsightly supra-occlusion, without improving facial lines. Extraction of second molars allowed closure of bite with immediate facial improvement and avoided a protracted treatment with doubtful results. Depression of molars was possible, but not probable, while simply drawing anterior teeth together would have been making an added deformity in attempting to compensate for that in molar region.

Age 15, girl. Lower first molars previously lost and spaces practically closed, leaving facial effect of retruded mandible. Patient objected to

**Case V.** opening lower first molar spaces for bridges. Case treated as though the second lower molars were firsts, with results satisfactory to patient and to me. Of course, it is not normal occlusion, and some grinding of second molars was necessary to allow them to serve in place of the first molars; but I feel that the patient was served better than by an attempt to secure normal occlusion.

Many of those present will doubtless disagree with my decisions in these cases, for difficulties to one may not be such to another. However, the details of treatment are not the subject under discussion, but rather the question of advisability of compromise treatments.

At the present time a consideration of the subject naturally has to do principally with older patients, in whom the most favorable bone-growing period has passed and among whom mutilations or incomplete dentures are so frequently encountered. With the more general acceptance of the doctrines of early treatment and the employment of preventive measures there should be a constant decrease in the conditions under consideration; but I fancy it will be some time before we can eliminate them from our list of troubles.

### Discussion on the Paper of Dr. Lourie.

I think this paper of Dr. Lourie's is a very

**Dr. Wilson Foster.** timely one. I know when I first started I attempted to open up the spaces for missing teeth and got into serious trouble. I am very glad now to compromise in many cases. I see no reason why the Society should abandon or change the idea of the basis of orthodontia. Wherever there has been accomplished anything worth while, there must have been some definite or underlying idea toward which to work. In orthodontia this is normal occlusion. In a great many cases we can utilize this idea to the satisfaction of our patients and ourselves. In other cases it is impossible to do so and at the same time benefit our patients as we should be able to do. We should be able to recognize these particular cases when they present for treatment and do the best for the patient, even though we sacrifice some of our ideals.



Dr. Lourie spoke of the opening of the bite during treatment, which has been a stumbling block for many. I thought it was due to my faulty technic, and if Dr. Lourie or any other member has found a solution of this he would confer a favor by telling us how to avoid it. I have been hoping for much in this direction from the new Angle appliances.

I congratulate Dr. Lourie on the beautiful results he has obtained in Cases 3, 4 and 5.

I do not wish to prolong this discussion unless necessarily, but there is another phase of compromise treatment which I wish to illustrate.

Dr. C. H. Hawley, Washington, D. C. I am thoroughly satisfied there are cases in which a compromise treatment is necessary, and I am likewise convinced that there are cases in which the extreme effort to obtain normal occlusion does harm. This type of case I have observed in a number of instances, and one case I would like to illustrate (Case 6).

This case was originally treated when the girl was 16 by a general dentist, who extracted the upper first bicuspids and the right lower. If the case had been treated by restoring normal occlusion at that time, it might have been perfectly successful, but the girl received no further treatment at that time. Two years later she went to a neighboring State, and some man, when she was 18 or 19 years of age, attempted to open the spaces for the bicuspids and restore complete normal occlusion. What was the condition at the time? The incisors and cuspids had not closed the space by moving backward, but the molars and second bicuspids had moved forward, and in attempting to restore the spaces for the first bicuspids, the incisors and cuspids were moved far forward of their normal positions and were laid out as nearly horizontal as any teeth I ever saw in a human mouth. The girl was dismissed with the assurance that bone would build up and that the teeth would become upright. I think it is one of the worst deformities I ever saw as the result of treatment. The case was not treated properly in the beginning. The second man did not recognize the real conditions. He went on blindly to restore normal occlusion. A compromise treatment would have produced far better results.

**Dr. Dewey.** Was he a recognized orthodontist?

**Dr. Hawley.** He was devoting a good deal of his time to orthodontia.

There is another class of cases that is difficult to discuss without illustration, cases that have passed the period of development. We will agree for a moment that in most cases nature has given the person teeth that will be best suited to the ideal development of the physical body, but for some reason the physical body has been stunted in growth and has reached a mature age. The teeth at this time

are in malocclusion, and if placed in normal arches and the alveolar process developed, the alveolar process and teeth will be out of all proportion to the rest of the face. I do not like to say this is a general class, but there are such cases. We have a different situation to deal with in restoring normal occlusion of the teeth when patients have passed the age of development. I am unwilling to say that restoration of normal occlusion in these cases is always the best.

In the introductory portion of his paper, the **Dr. H. A. Pullen, Buffalo, N. Y.** essayist has referred to this society as "a staunch advocate of normal occlusion and our goal in treatment." With equal candor it may be said that this society is open for conviction to whatever is opposed in theory and practice to this same ideal.

Hence it is that compromise in treatment, or departure from the ideal, will be viewed with the same or even greater interest, especially when presented by such a staunch advocate of normal occlusion as the essayist always has been known to be.

An armless Venus is apparently a departure from the ideal, and to the unobserving may only present deformity in the loss of two probably perfect arms, but to the thoughtful and observing mind the beauty of the figure of this shorn ideal may fully compensate for the lack of arms.

Likewise it may be said that any necessary departure from the ideal of normal occlusion, if viewed from the right standpoint, may present a shorn ideal of great value.

Whether the reason for this departure from the ideal be expeditiousness, utility, or any other of a number of things, the great fact remains that these departures are *very rare exceptions to the rule*.

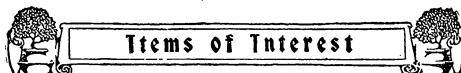
A compromise treatment of the nature of those shown by the essayist should be, like the crowning of a tooth, the very last resort.

Extraction of teeth in particular is always a contra-indication in the prognosis of cases of malocclusion, and the consequences should be thoroughly and carefully studied before adopting such a measure of relief.

Personally, I have extracted but three teeth in cases of malocclusion in thirteen years, and these were in cases which had been already mutilated by extraction.

On putting the question to most of the members of this society individually, I find that some of you have never extracted teeth, and many of you have about the same percentage of tooth extractions to your credit as myself.

The limitations in the production of normal occlusion can never be adequately described from the experiences of any one man, as no one man's experience is sufficient; neither is his ability nor his perception



accurate enough to render final judgment without confirmation by his contemporary practitioners. For example, one orthodontist may obtain a result of normal occlusion in a case in which it would be impossible for another less skillful orthodontist to obtain it.

These are personal limitations, however, and should be only taken into account in order to obtain a proper perspective whereby we may see the whole subject clearly.

The essayist, at the request of the Board of Censors, presents the subject of the limitations in the production of normal occlusion in treatment in the form of two questions, the answers to which are expected to reach the heart of the matter.

First: "Is it possible in all cases to place and retain all of the teeth in their anatomical relations?"

Second, "Even though ultimately possible, is it always advisable to attempt it?"

I am sure that every experienced orthodontist would answer both of these questions in the negative, as has the essayist, which does not entirely dispose of the subject under discussion.

A further disposition of the subject which would require the most careful study and differentiation in a symposium of the combined experiences of many orthodontists would answer more vital questions as to the class of cases and the differential diagnosis of cases in which normal occlusion is attainable and those in which it is not, and in cases in which it is advisable to attain it and those in which it is not.

With the present ideal of the orthodontist, treatment under 15 and 16 years of age usually results in normal occlusion and harmonious facial lines.

Beyond this period the individual judgment of the operator should be carefully cultivated through a conscientious study of every involved condition, that compromises should be avoided if possible.

In cases already complicated by extraction and those in which extensive caries of the teeth has taken place, the dividing line between the ideal treatment and the compromise way seem hard to differentiate.

The fewness of the cases shown by the essayist in which he has compromised, as it were, shows that this departure from the ideal is not a serious handicap to the restoration of normal occlusion in his practice, nor is it in any of ours.

A finer interpretation of the results obtained by the essayist might be gained by the study of the faces of these cases, which, unfortunately, he has not shown.

As time goes on, I trust that the members of this society will report cases of similar or unlike nature, so that we may all gain by their frank discussion.

If fear of criticism of results may deter members from presenting these cases, it should be understood that the consent of the members who report these cases to have their reports published should be first obtained.

There can be no question of Dr. Lourie's ability and judgment, and if in his practice his results seemed expedient, or of greater utility, or the lip closure seemed better, I am not willing to be the one to call him to any critical account, although I am not certain that my plan of treatment would have been the same.

**The President.** Dr. Lourie's paper is now open for general discussion.

**Dr. R. Ottolengui,  
New York.** I think a paper that brings before us the question of our limitations is equally as important as one which brings before us the question of our possibilities.

I would like permission to talk on this subject from an entirely different angle. The cases discussed are somewhat later in life than those I wish to discuss, and they deal with mutilation. We have a large problem confronting us when we have to deal with the young mouth in which a tooth or teeth are congenitally absent. It seems to me the time has come when we must cease to be hide-bound in our dogmas. To explain more fully what I mean, let me say that the general tendency at the present time is to insist upon a definite number of teeth in every mouth. The natural teeth must be placed where they belong, regardless of the congenital absence of other teeth. I think the sooner we get away from that idea the more quickly will we be making progress in treating these cases as a separate class. Some one not long ago said that the bridgeworkers would soon develop a technic which would be a satisfactory solution of the problems which we leave for them to solve, when we follow our religious tenet and move all the teeth into proper places and leave spaces for the bridgeworkers to fill. Thus far they have not done so. I want to say two things along this line.

First, is it restoration of normal occlusion to place teeth in normal physiognomic and physiologic line one to the other, but with spaces between them, without the natural intervening organs which are needed to keep them in those positions? Or supposing that these spaces can be filled, are we to restore normal occlusion with the assistance of the prosthetic worker, when to do so we must compel two tooth roots to do the work of three in carrying a bridge? It seems to me that in addition to the actual position of the teeth we must remember the physiologic functions which they perform. We should recognize the fact that in youth one live tooth is worth two dead ones or pulpless ones. We should

recognize the fact that teeth operating in the arch as units serve better than two individual teeth bound together to do the service of three.

One problem which the prosthetic men are studying, but have not yet been able to accomplish, is the construction of bridgework in which the teeth move as units and which does not put stress upon the adjacent teeth.

A serious problem that confronts us more often

**Dr. Fred'k C. Kemple,** than extracting is what to do when one or two teeth

**New York City.**

are congenitally absent or have been lost. Shall

space be made where these teeth are missing and artificial substitutes inserted? How shall these be attached? By partial plate, fixed or removable bridgework? How? It is a difficult question and has not yet been satisfactorily answered.

In the large majority of cases where only one or two teeth are missing (not adjacent) I believe it is preferable to close the space, if possible, by moving the teeth together, rather than resort to the unsatisfactory expedient of any kind of artificial teeth at such an early age. It is a serious matter to mutilate young teeth for bridge attachments of whatever kind, and a partial plate must be a constant source of annoyance to the patient and jeopardy to the natural teeth and soft tissues of the mouth.

Where several adjacent teeth are missing artificial substitutes must be used; they are our *last resort* and should ever remain so. In such mutilated cases an ideal result from treatment is impossible. Artificial substitutes are a compromise; closing the spaces is a compromise; but I believe the latter, in most cases, is the lesser of the two evils. I would make exceptions of those cases that require a normally large arch to aid in normal breathing.

This is the first time, I believe, in the history of this society that the question of the advisability of sometimes extracting in order to facilitate treatment or secure retention has been discussed. This is the thirteenth annual meeting—thirteen years without feeling the necessity of discussing the question of extracting in the treatment of malocclusion is a splendid record for this society. If this has been an error, and I believe it has not, it is certainly erring on the side of safety—on the side of conservatism.

All of us, I presume, have adopted the rule, "Never extract," and in my opinion it is a safe rule to follow. There will come into the average practice in orthodontia very few cases in which it would be wise to deviate from this rule, and these few cases would probably be confined to patients past sixteen or seventeen years of age. In my own practice, in order to facilitate treatment, I have extracted only one tooth for a young patient, and then my judgment was wrong; the tooth should not have been extracted; the result would have been better if it had been kept.



But there are exceptions to every rule, and it is these rare exceptions that Dr. Lourie is discussing in his essay. I have seen a few of the cases to which he has referred in his paper, and I must agree with him to this extent; probably more satisfactory and pleasing results could have been obtained in these cases, and both treatment and retention simplified by the judicious extraction of one or two teeth.

I have seen one or two cases where extraction had been resorted to with gratifying effect. One of these came to my attention soon after I returned from Dr. Angle's school in 1900. A young lady, attractive in appearance and with pleasing facial lines, with beautiful teeth in good alignment and in good occlusal contact, had the two upper first bicuspids missing. I was surprised to see this; it rather shook my faith in the "law," but I realized that such conditions are very rare. On inquiry, this lady told me that her "teeth had been very irregular and prominent when she was a child, and that her dentist had extracted these two bicuspids when he straightened them."

In order to maintain retention of some cases it may be necessary to consider extraction of lower third molars more often than any other extraction, but these cases are also rare. I would still maintain the rule, "Never extract," and would emphasize the fact that *only in rare and exceptional cases is extraction indicated.*

I would like to take this opportunity to congratulate Dr. Lourie upon his paper. A man who comes before this society and reads a paper of this kind and shows where he has made a failure is one who deserves great credit.

It is seldom that a case comes to us where it is necessary to extract a tooth or teeth, but I do think we get such cases occasionally. It is an entirely different proposition to take a young individual who comes under our care, six or seven years of age, and give the treatment the patient should have to develop normal arches. That is all that can be done; but what are we to do with the older patients, those who are 18, 20 or 25, and we do get them? We have to deal with them, and they want results. In some of these cases this can best be done by wise extraction. Sometimes I hesitate before I extract a tooth or before I would advise another dentist to do so, because I always feel if you advise a man to take out a tooth in a case, he will do it, and then next week, when another case presents, he thinks it is similar and that the same treatment should be followed, although the case may be entirely different.

Several years ago Dr. Angle promulgated the doctrine that the best balance, the best harmony, would be obtained by having the full complement of

**Dr. Martin Dewey, Kansas City, Missouri.**



teeth. I still believe it. After seeing Dr. Lourie's slides, I believe it more than I did before. I believe it because it is a question of judgment on the part of the individual orthodontist who sees these cases.

The first case he showed was treated several years ago, where he opened the space for the first molar. He said the overbite was too short. I would like to know how he knew it was too short; he would simply answer because of his judgment, probably. The length of the overbite of the anterior teeth, as I said yesterday, as proven by comparative dental anatomy, depends upon the length of the cusps. The case shown had a short cusp of the molar and should have a short overbite. In other cases he treated and showed the overbite was too great. That is not my judgment, but is a rule based on comparative dental anatomy. The loss of the first molar or any tooth has a tendency to produce an excessive overbite, and there are more pathological conditions being treated to-day, more cases of pyorrhea caused by excessive overbites than by short bites. Those of us who are so situated as to observe cases of pyorrhea, and have seen a variety of them, must have been impressed by the large number of instances in which the principal etiological factor was an excessive overbite. Where one bicuspid had been extracted, and Dr. Lourie took out another, the overbite was too great. In a few years he will have the lower incisors striking against the upper gum. That will cause more trouble in treating these cases and eventually putting in artificial teeth.

Where teeth are congenitally absent, as described by Dr. Ottolengui, another phase of the subject is opened up. We must be careful, and I think Dr. Lourie has erred because of the rule such I have laid down in producing the overbite in this case.

He speaks of another phase of the question—mature alveolar process. I do not know what he means. He intimates that the alveolar process or the osseous system stops growing; that it never changes. There is no such thing, because the alveolar process and osseous system are constantly changing, and they keep changing as long as we live, and what he means by mature alveolar process is something which I do not understand. I still contend that the greatest balance or the best result for the individual is obtained with the full complement of teeth, and advocating compromise treatments, obtaining results which are entirely out of keeping with anatomy of the parts involved is wrong.

I wish to say that compromise treatments are practiced in every phase of medicine. We **Dr. M. N. Federspiel, Milwaukee.** promise treatment in diabetes, in nephritis, and in general surgery. It is not always possible to produce ideal results in the practice of orthodontics, therefore we are called upon

many times to obtain an improved condition. I wish to congratulate Dr. Lourie on the position he is taking. He is working along correct lines.

**Dr. J. Lowe Young,  
New York City.** I am very glad to have had the opportunity of listening to Dr. Lourie's paper, but to take issue with him without a careful study of the models and photos

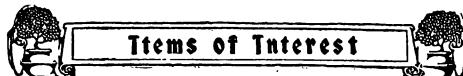
of each case I believe would be foolish. I am convinced that the essayist would be one of the last men in this society to resort to compromise treatment without careful study, probably extending over months, of models and photos of the case, and that when he decided on compromise treatment it was owing to the fact that he considered it the best course for the patient.

There is no doubt we have our limitations in this work, and the older the patient the more certain we are to encounter these limitations. After patients have passed the period of normal bone growth surrounding the teeth, we have to a very large degree reached limitations. I wish to repeat once more, I am convinced that to be successful we must resort to early treatment, or, still better, preventive treatment where possible.

In ten years I have advised the extraction of but one tooth, and that was for a patient nineteen years old, who had one upper lateral absent and the other lateral very small, or what is known as a peg tooth. In this case one lower first bicuspid was removed, and I am convinced, as the models will show, that it was the best course for this patient.

**Dr. Guy G. Hume,  
Toronto.** I would like to ask Dr. Lourie a question. I think in Case No. 3 he has certain characteristic facial features of Class 3, if I understood him.

Would it have been practical, or did you think of treating the condition and establishing the mesial relations of the upper molars to the lowers. The reason I ask the question is that at the present time I have under my care a case that was started in that way, and I am continuing the treatment. There is a very marked inclination of the upper central incisors, and I was doubtful at the time when I saw the case whether it was practical or not. This young lady was seventeen years of age. She originally came to me and I diagnosed the case and believed the best treatment was to open the spaces for the first bicuspids. She went abroad, and during that time I communicated with the dentist across the water, and he thought from the standpoint of treatment I was wrong, and that he would treat the case as a Class 2 case, establishing that relation, that is, a mesial relation of the upper molars to the lowers. When she returned I continued treatment, and I am still working on it. From that standpoint I would like to have Dr. Lourie answer the question.



I would not have considered it in this case at all, because in my method of shifting the mesio-distal relation of these teeth I would have caused considerable opening of the bite, and that was one of the difficulties I wanted to avoid, because I find it requires long treatment to get satisfactory results in closing the bite in these conditions.

Dr. Courie. Dr. Dewey spoke about the length of the overbite being proportionate to the length of the molar's cusps. I am familiar with that theory, and think, as a general proposition, it is correct. It will not hold entirely, for there is not enough variation in cusp length to account for the variations in length of the overbite.

Instead of considering the length of the molar cusps, I would much rather decide what the overbite should be by considering the size and shape of incisors. I feel there is usually a definite place for upper incisors to receive the occlusal contact of the lower incisors. This is not scientifically accurate, but clinical experience will confirm it.

Dr. Dewey says he does not know what I meant by using the expression mature alveolar process. The term mature alveolar process is probably inaccurate, and I will admit that the alveolar process is never mature in the sense that it stops growing; but I have always understood that in early life the alveolar process is a more cancellous structure and the cortical plate not so dense as in older patients. When I spoke of mature alveolar process I meant an alveolar process that has the characteristics found in older patients, an apparently dense cortical plate, and very little cancellous structure, and in many cases practically nothing but a cortical layer.

I am glad the subject of teeth that are congenitally absent was brought up. There are many things that enter into the consideration of compromise treatment that I did not mention. It is not simply a question of whether we should extract teeth or not, and I hope it will not be thought that we are receding from our ideals with reference to the general proposition of extraction. We must all recognize the necessity of extraction in some cases, because we realize our limitations.



## Amalgam and Its Phases.

By W. G. CRANDALL, D.D.S., Spencer, Iowa.

*Read before the Union Meeting of the Third and Fourth District Dental Societies at Schenectady, N. Y., October, 1913.*

The first purpose of this paper will be to make as plain as possible to you a few of the important facts regarding the use of amalgam, and to make these facts so plain that they will be of service to you, and of ultimate benefit to your patients. The second purpose will be to draw out a discussion of the subject that will cover every point in doubt in your minds as to the usefulness of this important material which we are considering. By this statement it is not the desire of your essayist to infer that he has a universal knowledge of the subject; he very readily admits that this material contains many mysteries and laws governing its physical and chemical actions of which he is in the dark.

Amalgam—so simple in composition, and in so universal use by our profession for so many years; certainly, there remains nothing unsolved regarding amalgam or its use. Would that this were true. Many of our best men have given freely of their minds, that we might be the better equipped to serve our fellow-men with this material, and the results of their labors have borne fruit. One step after another amalgam has been developed so that it stands to-day the most used, as well as the most abused filling material in our hands. A careful review of the voluminous literature of the subject is sufficient to convince one, that it is quite hopeless to record many new observations, to develop any new properties in the material, or to expand extensively upon their uses. In

fact, the subject seems to have been covered, that is, if one were only to consider the printed records, he would be overcome with the exhausted condition of the subject.

However, let us for the moment forget the printed records, let us be more practical and do the common sense act of searching out our failures.

**Causes of Failure with Amalgam.**

No need to ask the question, for we all know and most of us will admit that amalgam fillings do fail; even our own fillings occasionally will fail. Why? Yes, why? That sounds as though it would require mental effort to solve, so let us make it easier and ask, "How do they fail?" Perhaps we can get part way up to that one; let us try! After carefully studying the subject, I am of the opinion that the following are among the chief causes of amalgam failures, any of which might lead to fatal results.

1. Poor cavity preparation.
2. Lack of adaptation and condensation of the amalgam.
3. Careless methods of operating.
4. The use of unbalanced alloys.
5. Because of flow and fracture.
6. Because of unfinished margins and surfaces.
7. Faulty amalgamation.

These various causes I have attempted to give in the order of their importance, and for convenience in discussion. With a clinical knowledge of some of the causes of our failures with amalgam, let us examine a few of these briefly, that we may possibly correct or alter our technique for the better.

**Cavity Preparation for Amalgam.** I have mentioned as the first and greatest cause of failure the cavity preparation. In my mind there is only one other cause of failure that approaches it and that is poor adaptation. The sub-

ject of cavity preparation is so vast in its importance, that it must of necessity be considered in a different paper. We will but briefly mention here in a general way its importance. Dr. Black has given us such a perfect system, and you no doubt are so familiar with it that I could add but little. The system is not new, it is now time-tried and has been found not wanting. It has been preached and demonstrated the land over, time without number. It has been your essayist's privilege to have an intimate acquaintance with a large number of men, who have mastered the technique of this system, and who practice it continually, and I must say to you that I know of no man who has mastered the technique, who will so much as suggest a fault, or who has been willing to give it up even partially for any other system. All must

admit that fillings well made in cavities of this type are remarkably long-lived. Yet, if we were to go upon the streets of any of our cities to-day, and had the privilege of a close examination of the first one thousand amalgam fillings that passed us, would we find one per cent. of that number with margins properly extended and beveled, with a flat seat and parallel walls and with proper occlusion? I think not, but why I cannot tell you, except that *too many of us are so busy earning money, that we are unable to honestly practice our profession.*

To have a large percentage of success with our amalgam fillings, the cavity must have such an outline form that its margins will lie in areas of comparative immunity. For resistance to the forces of occlusion, the base or seat must be flat and at right angles to the long axis of the tooth. More retention is needed than for gold because of the fact that amalgam cannot be wedged between the walls as is gold foil, and, further, it lacks strength and tends to flow from the cavity, therefore, the cavity should be slightly retentive in form, carefully avoiding undercuts of depth which might in any way weaken the walls.

In approximal cavities where the occlusion is normal, it is well to give as great a breadth and depth to the step as safety to the pulp and the marginal contour will permit.

The prevailing opinion seems to be that margins of enamel should not be beveled for amalgam, that is, that the cavo-surface angle should be at right angles. This is a dangerous doctrine. The margins must be beveled so that all unsupported enamel rods will be removed. If they are not removed during the preparation, they will become detached later on and leave a defect in the margin. Dr. Black's rule is that the enamel should be beveled one-fourth of its depth. This would be proper for gold foil, but for amalgam it would leave a thin edge that would not be strong, therefore, we make our bevel the entire depth of the enamel or even deeper. The chisel should plane the entire enamel surface, following the direction of the enamel rods, with just enough angle from the cavity to safely include all unsupported rods. This form of cavity gives as nearly as possible a right angle form to the surface margins of the amalgam.

Whenever there is doubt of the strength of any wall or cusp, the permanence of the operation demands its removal. The rule is that no metallic filling should ever be placed against an enamel wall unsupported by sound dentine. For esthetic reasons, the rule may at times be disregarded. However, with amalgam placed as it usually is placed in the posterior teeth, the rule should be followed very closely. If the destruction of the dentine has become so great as to endanger the strength of any cusp or wall in the bicuspid or molar teeth, I should advocate the

cutting down of such a wall or cusp to such an extent as to permit of restoring it with a bulk of amalgam, that will have great enough body, so that its strength will have a safety margin to stand any force of occlusion. In cutting down such walls, it is wise to cut them very boldly, usually about two-thirds of the gingivo-occlusal diameter of the tooth. Once the summit of the cusp has been destroyed, there is nothing to be gained by conserving such a wall, and the permanence of the operation demands a large bulk of amalgam to insure against fracture or flow.

These few suggestions as to change in the regular rules of cavity preparation are made necessary because of the difference in the physical character of the filling material. Amalgam becomes strong as the bulk increases, therefore, the necessity of placing a larger mass where stress will come. Its margins are not ductile, therefore thin margins should be avoided.

**Adaptation and Condensation.** More amalgam fillings fail because of poor adaptation than from poor alloy. The assertion has often been made that it requires greater skill to make a good amalgam filling than one of gold.

This lack of skill is shown in the use of both materials by poor condensation and adaptation. We all know that to be of service the filling material must be in close adaptation to the walls. Our only difference of opinion can be, "how will we place it there?"

Dr. Black has demonstrated that amalgam fillings contain about fourteen per cent. of air-space, often much more. The air becomes incorporated in the amalgam during the process of mixing and placing of the filling. It remains in the filling because compression has not been sufficient to force it out.

To get good adaptation we must have heavy condensation and with the proper lines of force. We cannot get heavy condensation without strong walls to work against; a matrix when in place is considered one of the walls of the cavity. Experiments and experience have proven to me that heavy mallet force, using flat-faced serrated instruments, will produce the best adaptation and the strongest filling. The instruments best adapted to the purpose are those that most nearly fit the cavity. (Illustrates pluggers.) The plunger must not be so large that it cannot be readily manipulated in the cavity, or that there will be danger of wedging between walls and producing fracture, but sufficiently large to carry the amalgam to place, and hold it under stress. Small pluggers chop the amalgam and disturb that which may be properly placed.

Amalgam is treacherous in that it packs and adapts on the surface, readily giving the appearance of thorough adaptation. If we should place on the floor of the cavity a small roll of amalgam, and bring pressure upon it with our flat-faced plunger, we condense it only beneath the plunger. It will spread from beneath the plunger in the lines of least resistance, but will not condense into the angles of the cavity until the plunger comes directly over it. Therefore, the amalgam should be condensed from the center to the margins, stepping the pluggers in about the same angle as for gold, always producing the last pressure at the margins. In making large restorations, you may have noticed after having packed one side of the filling, that pressure upon the extreme opposite side would show a change in color and form of the surface, radiating from the side where pressure is brought to the opposite side. If pressure with the plunger upon one side of the filling will produce movement upon the opposite side of the filling, which is visible to the human eye, how are we to obtain a tight filling? My answer is, that within the cavity the amalgam must be forced from the center to the walls and angles, using pluggers as large as the cavity will permit. In completing the filling, a large excess should be built on and a plunger used that will cover the entire cavity and margins. When heavy force is brought on this, the amalgam will be forced directly against every margin and not away from any.

When this is complete, the filling should not be touched until crystallization has set in so that plasticity has passed and the amalgam can be carved. The cutting and finishing should then be done so that the force is all directed toward the margins. At this time the filling should receive only a rough finish, that is, all large excesses should be removed, and the approximate contour obtained, so that the final finish, when the amalgam is thoroughly hard, will not require much work. The patient should be instructed that the operation is not yet completed and that another sitting will be necessary.

**Careless Methods.** Our third cause of failures is evidenced by its results. The way some dentists operate might be compared to a surgeon making a laparotomy operation without first making a diagnosis. He does not know what he has started out to do, and, of course, does not know how he will do it. A careful operator after examining a cavity should study the occlusion, know the lines of force and prevailing conditions, and plan his operation to resist them. He should lay his margins in areas that will be swept and cleansed by the food in its excursions over the tooth. Remove any weakened cusp or wall and support it with a mass of filling that will be amply strong.

**Use of Rubber  
Dam.**

Before the preparation and toilet of the cavity are complete, the rubber dam should be adjusted, or some other means provided that will keep the cavity absolutely dry. I believe thoroughly in the use of the dam, and use it whenever it can be used with the exception occasionally of very small pits, that I know do not have carious tissue at their base, and whose margins are simple to prepare and the time to be consumed short. I use the dam because it clears the field and gives better vision, and excludes all moisture and infection from the cavity. The amalgam should be packed against walls and margins that have not been coated with saliva, for wherever the saliva is dried, it leaves its coating of dried salts and débris, and such a coating is not safe on a margin. Moisture should absolutely be kept away from amalgam while it is being manipulated; it will weaken any amalgam, and the maximum strength of amalgam is none too great. The rubber dam is a time-saver for the skilled operator. When it is once in place, the operator can give his entire attention to the operation without fear of the cavity becoming suddenly moistened by some erratic action of the patient.

One of our best-known operators has kept account of the time required to adjust the rubber dam for a period of time. The average for all cases was about two minutes. Perhaps the patients do not appreciate it, but if we are working for their interest we should use our own judgment.

**Use of  
Matrices.**

This question has actually been put to me a number of times by men who looked bright and intelligent, "Do you believe in the use of the matrix?"

Do I believe in the use of the matrix on approximal cavities? I believe of all careless things done in careless moments by careless men, the making of an amalgam filling in an approximal cavity without a matrix is the most careless. A man who would do such a thing is not a dentist. It is only by hiding his work in the septal space behind some dumb molar in a dark corner of the mouth of some innocent and unsuspecting individual that he is permitted his freedom.

We speak of educating the public in oral hygiene—splendid thing, but it might be well to take some action toward the education of our profession first. A good amalgam filling upon the approximal surfaces is not possible without a strong and properly adapted matrix.

*(To be continued)*

## A Statement to the Profession.

### From the American Academy of Oral Prophylaxis and Periodontology.

Believing that the interests of all concerned demanded the formation of a society devoted to the advancement of oral prophylaxis and the study of so-called pyorrhea alveolaris, a committee, whose names appear below, met in Cleveland, Ohio, February 21, 1914, and adopted the following resolutions:

*Whereas*, The progress recently made in the prevention of dental caries and the prevention and cure of so-called pyorrhea alveolaris has reached a point where definite and favorable results are known to be attainable; and these results are of great benefit and importance to the public; and

*Whereas*, The failure successfully to combat these lesions for many years past has rendered the general dental profession skeptical as to the results attainable by methods now being advocated; and

*Whereas*, Experience has shown that the necessary skill in diagnosis and treatment of periodontal disease may best be acquired by the specialist; and

*Whereas*, The existing dental societies do not afford to dental practitioners a sufficient opportunity for the free interchange of ideas whereby the science and art of these branches may best be advanced.

We, the undersigned, do hereby deem it for the best interests of the public and the profession that a society should be formed, to the end that those especially interested may meet and work together without prejudice for the scientific investigation of periodontoclasia and caries, and that the practice of oral prophylaxis and periodontia as an exclusive specialty may be encouraged; and that the general profession may be made fully acquainted with the results that can now be obtained. We furthermore declare our intention of forming such a society, at a meeting to be held at Cleveland, May 23, 1914.

(Signed) J. O. McCALL, Buffalo, N. Y., Chairman.  
GRACE ROGERS SPALDING, Detroit, Mich.  
G. M. GEARHART, Washington, D. C.  
GILLETTE HAYDEN, Columbus, Ohio.  
J. W. JUNGMAN, Cleveland, Ohio.  
J. H. HOOD, Cleveland, Ohio.  
A. C. HARIM, Denver, Col.  
Committee of organization.

In accordance with the above resolution, a meeting was held in Cleveland, May 23, 1914, at which was organized the American Academy of Oral Prophylaxis and Periodontology.

At this meeting, Dr. J. O. McCall, chairman pro tem., set forth the reasons for forming such an organization and its objects, in a more extended manner, in an address from which the following extracts are taken:

**Address by Dr. J. O. McCall.** While our specialty is conceded to be the most important branch of dentistry in so far as the health of the mouth and its relation to the health of the body is concerned, we yet find ourselves in a somewhat anomalous position in our profession. The situation is as follows: as follows:

Individuals who have spent sufficient time in study and the development of a special technique, have demonstrated in their own practices the success of preventive and curative measures as applied to the tissues of the mouth, and have also shown the beneficial effects of these measures on the health of the body. The methods followed and the results obtained have been published to the profession, discussed, and in a general way endorsed; but there, for the bulk of the profession, the matter has stopped. Why? For several reasons.

The general practitioner has been confused by the differences in methods advocated, not realizing that all methods are fundamentally alike.

Because of the special technique involved and because results cannot often be obtained or shown at the same sitting, our clinics mean very little to the majority of observers. Consequently, our assertions as to the results of our work and our recommendations relative to it carry so little weight that we are virtually discredited and our specialty is in danger of being relegated to a position of secondary importance by the consideration given to the mechanical procedures which have been at once the glory and the bane of American dentistry.

Scientific research has so far done comparatively little to lift our work from the plane of empiricism, and we furthermore have no terminology worthy of the name.

The general practitioner who has made an effort to follow our recommendations has bought a few scalers and stocked his medicine cabinet with an array of drugs. He has then made an effort to develop in a day the diagnostic and technical ability which it has taken us years to attain; has then fallen back upon the application of one medicament after another, finally attributing his failure to the intractable nature of

the diseases encountered, rather than to the lack of proper training and equipment.

Furthermore, he has not always recognized cases in their incipient stages, when he could either apply preventive treatment, or, failing in that, refer them to the specialist at the time when the best results could be attained.

Pyorrhreal cases, when sufficiently advanced to force themselves on the attention of both the patient and the operator, are treated in a faithful but unavailing manner by the general practitioner, who, in the absence of a well-established and recognized specialty, hesitates to confess to the patient that he cannot cope with the disease. The result here is, the patient loses his teeth and may have his health impaired, or is referred to the specialist when curative measures can no longer be employed with reasonable hope for success, or are perhaps inadvisable.

Where specialists have established themselves, there is a feeling of doubt on the part of the general practitioner as to just what to expect of the specialist. Will his fillings and crowns be criticised? Will the specialist order them removed and new ones placed, thus undermining the patient's confidence in the family dentist? On the other hand, will the rough edges, faulty occlusal restorations, the half-hearted co-operation of the referring dentist make success impossible to the specialist?

The basic objects of such a society, then, may be briefly stated as follows:

To establish for the benefit of the profession and the public the need and value of the services of the specialist; the need of early identification, diagnosis and treatment of periodontal disorders, and to publish these facts to the profession and through it to the public.

To determine the field of the specialist.

To classify periodontal disorders in a scientific manner so as to permit of proper diagnosis and prognosis.

To adopt and recommend to the profession a nomenclature based on a proper classification, which shall be sufficiently accurate and in accord with scientific findings to merit universal indorsement.

To crystallize and unify as far as possible methods of treatment, so as to focus attention on essentials and avoid confusion over non-essentials; and, finally,

To carry on, or cause to be carried on, scientific research to determine the nature of the disease processes in the mouth, their etiology, diagnosis and relationship to bodily disorder.

---

The academy was organized with a charter membership of eighteen. The membership will be active—those dentists whose practices are de-



voted to oral prophylaxis and periodontia—and honorary, those who have notably contributed to the advancement of knowledge in this special field. Membership will be by invitation only.

The following officers were elected:

President—Austin F. James, Chicago.

First Vice-President—Andrew J. McDonagh, Toronto.

Second Vice-President—R. G. Hutchinson, Jr., New York.

Secretary—Charles P. Wood, Detroit.

Treasurer—Mary E. Alleyne, Detroit.

Council—Grace Rogers Spalding, Gillette Hayden, Clyde M. Gearhart, J. W. Jungman, J. Herbert Hood, and John Oppie McCall.



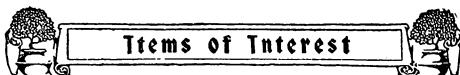


## Teaching the Technique of Carving Gold Inlays.

The papers to be read before the approaching International Dental Congress are divided into volunteer essays and reports. The reporters have their subjects assigned to them, and are expected to give an account of "the state of the art" in their home countries, rather than an exposition of their individual views.

The writer had the honor to be nominated by the American Committee to write a report on "The Filling of Teeth with Cast Gold Inlays." Believing that it would be of interest to learn something of the teaching in the schools, as might be judged by the work of the undergraduate body, he sent a communication to all the Deans of American Colleges, asking that the students be requested to make specimen gold inlays for exhibition at the Congress, and offering a gold medal for the best inlay received.

This little friendly contest thus inaugurated in the schools has resulted in several surprises. A time limit for the reception of these inlays was mentioned in the original letter, and on the specified date only a single inlay had been received. This seemed to indicate a marvelous desire on the part of teachers and demonstrators to help form an exhibition of student work at the Congress. However, requests for an extension of time were received, which was granted.



Oddly enough, this did not militate against the one man who complied with the original time limit, for though at present the writer has received about one hundred and fifty inlays, none has surpassed that first one, and the medal therefore goes to Mr. N. C. Gunter, a second-year man in the Colorado College of Dental Surgery, who submitted four beautiful inlays, the first and best specimen being a large restoration of a lower first molar, the inlay involving practically all the crown except the buccal wall.

Only one prize had been offered, but Mr. Oscar Wiggers, of the senior class of Temple College, Philadelphia, a native of Denmark, submitted a beautiful exhibit, including the restoration of molar occlusal surfaces at the ages (approximately) of sixteen, thirty-five, sixty and seventy-five, in which he discloses a keen appreciation of the demands at various ages. Moreover, he submitted eight other inlays, ranging from moderate size to full crowns, and the entire exhibit was beautifully mounted on turned brass pedestals and attached to a mahogany board.

The man had done so much work, and his work as a whole was so good, that the writer found it hard to deprive him of the medal. Nevertheless, the prize had been offered for the one best inlay, and by this rule Mr. Gunter won. However, Dr. J. Lowe Young was invited to examine and judge the exhibit, and did so without knowing the choice already made, and he also awarded the medal to Mr. Gunter. Yet he, too, was so impressed with the exhibit of Mr. Oscar Wiggers, that he suggested that we jointly award him a gold medal for general excellence, which has been done.

**Basis of the Final Decision.** It is interesting to note the extent to which the work of these students has reflected the teaching in their schools. For example, twenty-five inlays, all from one school, are all made in the same general manner, and show the same class of defects. The same is true of an exhibit of over thirty inlays from another school. From two or three schools, natural molars were received in which had been cemented inlays which by their presence removed every trace of occlusal form. Yet these inlays came, accompanied by letters from the demonstrators, vouching for the fact that the inlays had been made by the men sending them and under the supervision of the demonstrators. What moral shall we draw from this? What else can we believe except that the standards of

these demonstrators were no higher than that shown in these flat-surface inlays.

It was gratifying, however, to find that out of one hundred and fifty specimens sent in, all with the exception of five or six, at least, show an attempt at carving to imitate occlusal form. On the other hand, with the exception of the inlays sent in by the winner, and one other student from the same school, none evidenced a proper regard for the value of true and deep sulci, marginal ridges and grooves. A great number attempted to simulate cusps and sulci, but invariably the cusps are formed with round, smooth surfaces, entirely devoid of grooves and with little resemblance to true cusp forms; while the sulci are seen to have rounded bottoms.

Mr. Gunter's inlays escaped these faults to a greater extent than any other. His inlays were copies of natural teeth, and while not absolutely correct, nevertheless showed a comprehension of requirements and a knowledge of the mechanics of mastication.

Exactly in this detail did Mr. Wiggers fall behind, and that his work, like all the others, was but a reflex of his teaching, is proven by the fact that when he asked Dr. Young and the writer to criticize his work, and we then proceeded to explain to him the true purposes of the sulci, grooves and marginal ridges, he admitted that he was hearing this teaching for the first time.

**Erroneous Method  
of Teaching Inlay  
Carving.**

It is very evident that Mr. Gunter was aided in winning his prize by the fact that he had been taught by Dr. Frahm, and also because of a method of teaching followed in that school. It appears that

Dr. Frahm found a patient having remarkably typical teeth, with long cusps, deep sulci and well-marked marginal ridges and grooves. He obtained occluding models of this splendid set of teeth and with gelatin molds duplicated them in quantity. These casts are supplied to students and serve as models for carving teeth and inlays.

Mr. Gunter's first inlay was sent on a part of one of these casts which showed the second and third molars, the bicuspids and the cuspids, the first molar being replaced by an amalgam die carrying the gold inlay. It was evident from a study of the second molar on this cast that this inlay was fairly true to nature, but the writer has subsequently obtained



the full casts, and has thus had opportunity to compare the inlay with the tooth of which it is a copy.

The vast majority of the inlays submitted were made in teeth carved from vegetable ivory, or made of celluloid. This method is wholly wrong, if the reproduction of tooth form with cast gold inlays be the object. Not one student in a thousand can carve from ivory an exact replica of a human tooth (and celluloid technic teeth are far from nature). If, then, he is permitted to use this ivory tooth, to carve a cavity therein, and then for this cavity to make an inlay, is it not patent that the best possible result would be a restoration of the original ivory tooth, which itself was erroneously shaped? The ivory tooth carved by the student might serve as a model in which to cut cavities, and thus learn the science of cavity formation, but even for this work would not the plaster casts from real teeth, as utilized by Dr. Frahm, better serve to accustom the student to deal with actual tooth surfaces? However that may be, it certainly seems true that Dr. Frahm's method of furnishing his students with true tooth forms from which to copy when carving inlays is a better teaching method than to have the student make inlays for teeth carved by himself.

One other point was brought out in a study of **Form Better than Finish.** the specimens, and more particularly in conversation with Mr. Wiggers. This gentleman thought that his sulci were better as originally carved, but that they had become rounded by using oil of cajaput in polishing his wax patterns. This is so possible that it is worthy of special note.

Fine finish is most desirable, but it should never be sought at the expense of form. A beautifully carved wax pattern may have its best lines obliterated by a too free use of a lubricant to polish the wax. Later a beautiful casting may be similarly marred by careless lathe work. A gold inlay properly carved, when once cast, should have its occlusal surface polished only with brushes on the lathe, or with burnishers, the latter to be preferred, because a burnisher, properly used, accentuates the grooves, thus adding to the masticatory usefulness. Moreover, the burnishing hardens the surface. The best burnisher for this purpose is one of taftulum ground to a hatchet shape, so as not to round the bottoms of the sulci.



## Non-recognition of Dentists.

A bill has been introduced into the United States Senate (H R 6282, calendar No. 213) under date of June 5th, which is entitled, "An act to provide for the registration of, for collectors of internal revenue, and to impose a special tax upon all persons who produce, import, manufacture, compound, deal in, dispense, sell, distribute, or give away opium or cocoa leaves, their source, derivative, or preparations, and for other purposes."

The general purpose of this bill, of course, is to regulate the manufacture and sale of these drugs in such a way that the United States Government may have some control over those who use the drugs for vicious purposes.

The interest to the dental profession lies in the fact that there is nothing in the act which would include dentists among those who might register and thus become authorized to use the drug. The Internal Revenue Department say that if the act is passed they will register physicians, dentists and veterinary surgeons under the word "dispense," but it is difficult to understand how the dental uses of cocaine can be brought within the meaning of the word "dispense."

A copy of this bill has been brought to our attention too late for an extended study and analysis of it. We, therefore, merely publish this notification to the dental profession.





THE LAST CONTRIBUTION to this department has brought us some very

- ❖ nice letters; letters that are most satisfactory; but beyond expressing
- ❖ appreciation and thanks to the writers, modesty forbids us to pursue the
- ❖ subject. However, there is no harm to say *en passant*, that this little
- ❖ old world is not so large but that we can have a few neighbors. One
- ❖ real neighborly letter was postmarked at Pasadena, Cal., and you can't
- ❖ get much farther from New York and still be in the United States, now
- ❖ can you? Yet it seems I have a neighbor out there. Greetings, neighbor!

❖ ❖ ❖

THERE IS ONE letter, however, that I think was meant for publication.

- ❖ It comes from our old Colorado friend, E. J. K. This is how he phrases
- ❖ it. He says: "I am glad that I have had at least one reply to my remarks
- ❖ published in the April number. Dr. Hyatt is all right, nursery rhymes
- ❖ and all, but I take exception to one or two of his statements, made in
- ❖ the June number. First he says, 'No one can consider me a member of
- ❖ the Old Guard.' Why, then, does he rally to their support so nobly? I
- ❖ have given clinics at State society meetings, only to have one of our
- ❖ Old Guard crowd up and remark, 'Oh, I did that twenty years ago!'

❖ ❖ ❖

BY THE WAY, why don't these Old Timers vary that phrase and make it

- ❖ nineteen years or less sometimes? Funny that the New Fellow always
- ❖ comes into the limelight just twenty years after the Dear Old Man did
- ❖ it himself!

❖ ❖ ❖

RETURNING TO E. J. K.'s letter, with apologies for the interruption, he

- ❖ goes on to say: "Is that encouraging for the little fellow who has spent
- ❖ his time to work out what at least he thinks is worth while, and what he
- ❖ is quite willing to give to others?" Again quoting Dr. Hyatt he says:
- ❖ "It is the big fellows of the Old Guard who are the first to welcome the
- ❖ beginner in his efforts to contribute something toward the uplift of the
- ❖ profession." Well, I wish Dr. Hyatt would show me when and where.
- ❖ How about oral prophylaxis? I suppose that was met with open arms!



- ❖ And it was not started by the little fellows, either. Only last year one
- ❖ of our best prophylaxis specialists of the East read a paper at a State
- ❖ society meeting a thousand miles away from home, by invitation, if you
- ❖ please, and was criticized by several of the Highbrows. One man of
- ❖ prominence said in the discussion: "If Dr. \_\_\_\_\_ has told us anything
- ❖ except how to clean teeth I have failed to hear it." A classic and com-
- ❖ prehending commentary.

❖ ❖ ❖

"HOW MUCH ENCOURAGEMENT did Ebersole receive when he started

- ❖ his campaign for Mouth Hygiene? What about Taggart? What per-
- ❖ centage of the profession do you suppose have taken up the best thing
- ❖ along the lines of progress advanced in the last year? I allude to the
- ❖ anatomical restoration of occlusion with properly carved and cast inlays,
- ❖ as advocated by Young and Ottolengui! Dr. Angle covers the situation
- ❖ better than anyone I have heard when, speaking of the Old School, he
- ❖ says: "Their opposition has taken the usual form of opposition to prog-
- ❖ ress in religion, science, and politics; namely, to first ignore, then to
- ❖ declare, 'It is not true,' and finally to announce, 'We have always be-
- ❖ lieved.'"

❖ ❖ ❖

THERE IS MUCH truth in what E. J. K. tells us, but it is not true of all

- ❖ the members of the Old Guard. Moreover, we must not forget that the
- ❖ Little Fellow is going to join the Old Guard some day. What then?

❖ ❖ ❖

YOU MAY REMEMBER that awhile back I suggested that we might discuss

- ❖ the question of removing pulps before the application of shell gold crowns.
- ❖ Up to date the rush of letters on this subject has not clogged the mails,
- ❖ nor even littered up our desk. I have heard one little outcry, however.
- ❖ I was just swallowing the last bit of my strawberry short cake at the
- ❖ Grill of the Hotel Ten Eyck, during the meeting of the New York State
- ❖ Dental Society at Albany last month, when my good friend Thompkins,
- ❖ Thompkins of Utica, loomed in the offing. Pardon the sailor-like language,
- ❖ but I have been reading how the Resolute beat the Vanite, and that the
- ❖ Defiance still has a chance, etc., etc., and my mind is just a little yachtly.
- ❖ What is that? No, I said yachtly. I never use slang. But we left
- ❖ Thompkins in the offing.

❖ ❖ ❖

"COME WITH ME," said friend Thompkins, in a voice that sounded like the

- ❖ command of a secret agent of the Camorra, whatever that is. But, hav-
- ❖ ing fed well, I took my courage in hand, and went with him. He led
- ❖ me toward the Education Building, where the meetings were held, and
- ❖ partly, I suppose, to aid in my education, as soon as he had me in the
- ❖ shadow of the great structure he continued in his most impressive man-
- ❖ ner: "A molar which is to have a shell crown attached needs to have
- ❖ its pulp removed just as much as an elephant needs a spring overcoat!"

❖ ❖ ❖

THE PICTURE of an elephant in a spring overcoat rather awed me. Really,

- ❖ I could not imagine why an elephant would require an overcoat of any
- ❖ kind, considering the toughness of his regular coat. So I thought it best
- ❖ not to interrupt, but just to listen. Friend Thompkins gave me a few



- ❖ minutes to digest that Elephant and Overcoat, and then added: "I suppose the 'pulpicides' in New York will argue that you have found a great many dead pulps under shell crowns, but I ask you, have you not found dead pulps under your large gold fillings and inlays likewise?"

❖ ❖ ❖

THOMPKINS DID NOT give me time to telegraph the boys in New York for

- ❖ a reply, but went right on to answer, "You certainly have. Why, then, should you remove a pulp from a molar you are about to crown? Not because of the mere fact that it is to carry a crown. You should examine the tooth and determine whether or not the pulp should be removed, entirely aside from all question of crowning it. The fact is that teeth that are crowned usually are already badly carious. If not, a filling would be inserted. If carious, very often the pulp is already infected, and the man who erroneously crowns such a tooth, later finds a dead pulp, and possibly an abscess, not because of the crown that was placed, but because that pulp was destined to die in any event. We should discriminate, not jump to conclusions."

❖ ❖ ❖

JUST SO, and if we do discriminate we must take into consideration the pulps

- ❖ that have died where crowns have been placed over perfectly healthy, sound teeth, teeth having no caries and presumably no pulp disturbance
- ❖ of any sort prior to the crowning. Yet, subsequent to placing the crown, we have patients complaining of mysterious neuralgic pains, even where the pulps remain alive. And sometimes we know the pulp dies,
- ❖ because we discover a nice little fistula right over the main abutment of our beautiful little bridge. And we just hate the sight of that fistula,
- ❖ because the man has just paid the last instalment on that bridge, and it annoys us, it really does annoy us to have him ask, "Doctor, what are you going to do about that gum boil?"

❖ ❖ ❖

NOW, ISN'T THAT a mean question for a patient to ask? Do we want to

- ❖ tell that man that that is not a gum boil, but a regular abscess; and that a regular abscess means an abscess that discharges pus into his mouth regularly every morning before breakfast, and that he swallows it with his poached eggs? Do we want to tell him all the different diseases that Grieves, Rhein and Hartzell say he can get if that abscess is not cured? Above all, do we want to tell him that the only way to cure the abscess is to take the old bridge off, treat the tooth and make a new bridge, with a new set of instalments? Do we want to tell the man all these things? We do not! Then don't we wish we had taken that pulp out in the first place? We do! Well, then, there you are.

❖ ❖ ❖

BUT DON'T LET me influence you. Use your own judgment. Leave those

- ❖ pulps in and crown the tooth, or take them out before you crown the teeth. But whichever you do, write and tells us about it, and why.
- ❖ There must be others besides Thompkins with courage to talk on this subject. Here is a chance for those Little Fellows that have been championed by E. J. K.



WITHOUT GOING further into the general discussion at present, I will at

- ❖ least reply to one of Dr. Thompkins's statements. He suggests the idea
- ❖ that pulps often die under large gold fillings and inlays. This is quite
- ❖ true, and when we made large gold fillings by hammering them in, this
- ❖ was a most difficult problem. It often taxed the best judgment to de-
- ❖ termine whether to remove a pulp before filling or not. The long ham-
- ❖ mering itself became a factor that might cause the ultimate death
- ❖ of a pulp. But let me indicate to you a most useful method of dealing
- ❖ with such caries, now that we have the inlay process.

\* \* \*

LET US SUPPOSE that we have a large cavity in a molar or bicuspid, and

- ❖ after removal of the decay the pulp is almost exposed and the tooth very
- ❖ sensitive. I will not here discuss the methods by which we may de-
- ❖ termine whether it may be safe to attempt conservation of the pulp,
- ❖ except to say that a conservative method is demanded in proportion to
- ❖ the youth of the patient. At the age of twelve to fourteen or sixteen
- ❖ every risk should be taken. As the patient is older it is less excusable
- ❖ to take any risk.

\* \* \*

HAVING DETERMINED to make an attempt to conserve the life of the

- ❖ pulp, the pattern for a cast gold inlay should be made without the inter-
- ❖ position of any capping of any kind. The pattern having been obtained,
- ❖ its reverse side should be carefully studied and a cavity cut in it as large
- ❖ as may be without interfering with the retention of the inlay. This
- ❖ hollow in the underside of the inlay pattern should be extended toward
- ❖ the occlusal surface until when held up to the light the wax is seen to
- ❖ be so thin as to easily transmit light rays. By this means we secure an
- ❖ inlay when cast which, at exactly the proper situation presents a very
- ❖ thin layer of gold, easily punctured in case it should become necessary
- ❖ subsequently to drill through because of death of the pulp.

\* \* \*

I HAVE NO DOUBT that many practitioners have followed this method, but

- ❖ the majority, so far as I know, then make the mistake of filling this
- ❖ hollow part of the inlay with cement at the time of setting. It is mani-
- ❖ fest that in case the pulp should die and the tooth become sore it will
- ❖ be a painful procedure to drill through this mass of cement after punc-
- ❖ turing the gold. The better procedure is to fill this hollow part of the
- ❖ inlay with gutta percha, or even soft gutta percha, 'temporary stopping.'
- ❖ By this means the mass of gutta percha acts as a non-conductor over the
- ❖ point nearest to the pulp, and in case any subsequent opening of the tooth
- ❖ is required, the drill easily penetrates the soft mass.

\* \* \*

I HAVE DONE this operation a great number of times, and thus far have

- ❖ only once had the pulp die, probably because, being one of the New
- ❖ York "pulpicides," I do not take very great chances. But in one in-
- ❖ stance, in a lower first molar, I did place a very large inlay restoration
- ❖ over a pulp that was very doubtful in character. The tooth annoyed for
- ❖ some weeks, and finally became quiet so suddenly that I became sus-
- ❖ picious. Upon investigation I diagnosed death of the pulp. I drilled

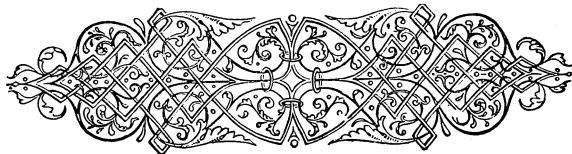


- ❖ through the inlay, easily passed through the gutta percha, and eventually
- ❖ removed the dead pulp, filled the canals and set a new inlay, which fitted
- ❖ into the old one as a cork fits a bottle. That is to say, all margins of
- ❖ the new inlay were in the old, no part touching tooth substance.

❖ ❖ ❖

IF THE ORIGINAL inlay had good margins, and, of course, it would have

- ❖ if you or I made it, care should be taken when drilling through it not
- ❖ to cut through the original gold into contact with any margin, for the
- ❖ reason that this might disturb the first plan of retention. If the second
- ❖ inlay fits the first like a cork in a bottle, that is to say, with slightly
- ❖ sloping sides, when set it may be driven to place so tight that if stones
- ❖ are used while the cement is yet somewhat soft the eye will be unable
- ❖ to detect any line of demarcation between the old and the new gold.





## Surgical Treatment of Pyorrhea.

Editor ITEMS OF INTEREST.

Dear Sir:

In the June ITEMS OF INTEREST appears a letter from Dr. T. B. Heckert, saying in substance that he has been operating for and curing Riggs disease by cutting away the gum overlapping the pocket—"eliminating the pocket entirely," as he puts it. He cites cases and says from these:

*"I conclude from these cases that we can cure pyorrhea by eliminating the pocket, either with medicines or the knife."*

Again he says:

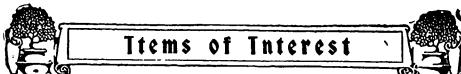
*"I cut the gum away entirely and claim that this alone will cure any case of pyorrhea where there is sufficient bone left to retain the tooth."*

At first thought, this reminds me of the old woman who advised her daughter to cut holes out of her dress. Dr. Heckert, I am sure, has spoken prematurely in these statements, and it is evident they are written in an enthusiasm that he will not entirely entertain later on.

In the same issue of the ITEMS OF INTEREST is a letter from you to Dr. Heckert, saying that you were present at the reading of a paper by me and that, between snores, you caught the idea that I advocated "incision of the part to the apex of the root to facilitate thorough cleansing." With all due respect to your waking moments, I plead not guilty. If you dreamed this, it was enough to wake you up with the impression hanging to you.

It is oftentimes advisable (in a deep pocket) to incise the gum *from the margin to the alveolus.* To cut further would be useless. This would afford us no access to the root above the edge of the bone unless we cut away the alveolus itself.

It is also sometimes advantageous to incise the *bottom of the pocket to the alveolus* throughout the entire extent of the pocket. This allows us free play to do a clean-cut piece of surgery and plane the root surface.



This planning of the root surface *after* the incision of the gum tissue is the operation you refer to as having been given to the profession by me about fourteen years ago. It was to do this operation that the various planing instruments have been later devised.

I believe the paper to which you refer as having heard me read is to appear shortly in ITEMS OF INTEREST. I trust the readers will escape the analgesic effect which the paper seems to have had on the editor; unless, indeed, it makes it less painful to them.

Referring again to Dr. Heckert's procedure, I will say, notwithstanding my criticism above, that there is certainly some merit in it. It is of distinct advantage in a case *now and then* to cut away the gum tissue, "eliminating the pocket." However, it is in my opinion advisable only in a very limited proportion of cases. Dr. Heckert is certainly correct in his idea that the gum should *heal to the bone*—or at least in about its normal relation to the bone at all points. Unless this follows operations we will have no cure, not even if all pus is stopped, notwithstanding how healthy the gum may appear at the time. In other words, Dr. Heckert's idea is that there should be no soft tissue stretched over root surface to which it is not attached, and certainly this is a correct idea. I am glad he has expressed himself. It is a good thought and stimulates thought and experiment on the part of others. The fact that Dr. Heckert thought he was advancing this thought for the first time shows, as you have intimated, how nearly it is true that "there is nothing new under the sun."

When I first began to cut away the gum over pockets I thought it was original with me (and so it was—and so it was with Dr. Heckert, also), but later I found this was advocated in dental literature more than a century ago. Even my own pet operation of planing the roots *was* simply *advanced* first by me as an idea; *not* the actual operation itself, because *all men have been doing this more or less while trying to scrape off deposits*. The instruments of Dr. Riggs himself were admirably adapted for this purpose, and in his operations he *unconsciously removed the surface* of the cementum, while, as he thought, he was only vigorously scraping away deposits from all over the root surface, and so I was only the first to advance the idea of planing the root surface—not the first one to do it, although, so far as I know, I was the first one to do it *intentionally*.

In answer to your letter to him, Dr. Heckert says:

"I cut the gum away entirely and claim that this alone will cure any case of pyorrhea where there is sufficient alveolar process to retain the tooth."

Dr. Heckert does not do himself justice in stating his opinion in



just this way. There is no royal road nor easy way to the cure of Riggs disease. In a paper read before the National Dental Association six years ago at Birmingham, Alabama, entitled "Riggs Disease, Yesterday, To-day and To-morrow," I tried to make it plain that the one chief reason that we as a profession still fail in the treatment of this trouble was that we had been seeking for a way—or a remedy with which to cure it—that we did not get at the underlying principles—that we had failed utterly to gather together and systematize and put to practical use all the good and useful things advocated by the different men who were if you please *cranks* on this subject. We would take up what one man advocated, try it indifferently and fail, and then another man's ideas and fail, and another and another—fail in all—and then say *there is* no cure, just as men will see Dr. Heckert's idea, try it on the wrong case, fail, and say *there is* nothing to it.

Now, I want to ask Dr. Heckert to consent to try out thoroughly his method for one year, and then to report to us through the ITEMS OF INTEREST the results. I am sure he will report some good results from this procedure, and also good results from other procedures where this is not applicable. Of one thing he may rest assured, that generally speaking, "eliminating the pocket" is only a small part of curing Riggs disease.

Sincerely yours,

HOWARD STEWART.

New York City, June 10th.

---

Editor ITEMS OF INTEREST.

Dear Sir:

Regarding the method advanced as a cure for pyorrhea alveolaris by Dr. T. B. Heckert in the June issue of the ITEMS OF INTEREST, I wish to corroborate his statement as to the efficacy of this rational surgical procedure. My clinical records for the past few years will substantiate the fact that I have found this procedure most effective as a cure in cases of true pyorrhea, uncomplicated by systemic disorders, and in the latter conditions a means of quickly removing distressing local complications, with the possible exception of those diabetic cases which are sometimes unfavorable for operation.

I cannot agree, however, with Dr. Heckert about cutting the gum away entirely. I do not see the necessity for this radicalism.

Where the root is a long one and the incision necessary to expose sound alveolar tissue is long, I use small ocular retractors as an aid in keeping the operative field clear. Then I sometimes bring the edges of the wound together, holding by suture. This in most cases is unnecessary,



While I do not claim that this method is a panacea for all cases of pyorrhea alveolaris, I think it deserves a high place in our efforts to control these cases. I am,

Respectfully yours,

MILTON L. SIMON, D.D.S.

New York City, June 12th.

Editor ITEMS OF INTEREST.

Dear Sir:

I wish to reply to Dr. Heckert's letter in the ITEMS OF INTEREST for June. I had a case of pyorrhea in an upper left central in a patient 75 years old, and I split the gums wide open to the apex of the root and scaled the tooth, washed it out thoroughly with antiseptic solution, and gave the patient instructions to keep it clean with antiseptic wash, tooth brush and paste. I obtained beautiful results. I did not keep a record of how long it took to cure it, but it healed thoroughly. The pocket extended on the labial surface to the apex of the root. I did not have much hope of saving the tooth at the time, but, nevertheless, I did save it. I found the tooth to be very sensitive, but believe this will pass away in time. I firmly believe in this method in cases of this kind. I am,

Yours respectfully,

A. E. NORTON.

San Antonio, Texas, June 8th.

Editor ITEMS OF INTEREST.

Dear Sir:

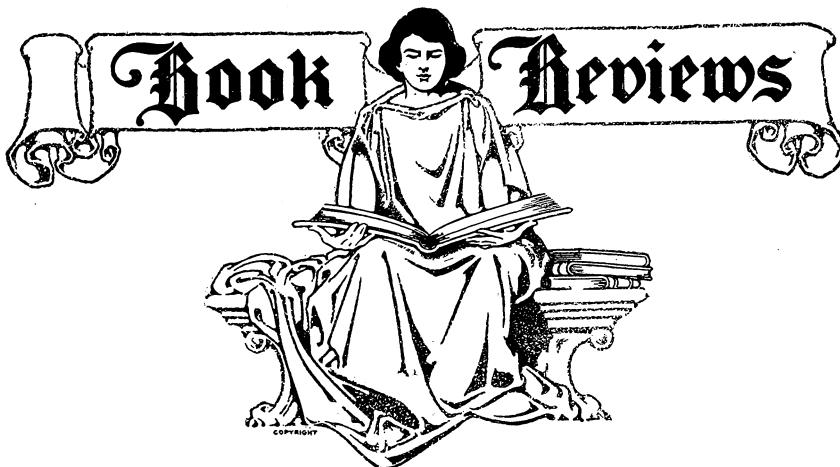
I have been reading in your June issue, under "Correspondence," a "cure for pyorrhea alveolaris," signed by T. B. Heckert, D.D.S.

It might be of a little interest to Dr. Heckert and others to know that some three years ago a patient presented herself at my office with an extreme case of pyorrhea. The gums were badly congested, deep pockets, etc. Without going into detail, I used the knife freely down to sound process. I then sprayed out with peroxide and removed the deposits and prescribed a mouth wash, which was kept up for some time after gums healed. All conditions of pyorrhea were eliminated and teeth rigid, and have continued so. The only condition that has not been favorable is that the gums did not return to their natural condition on the teeth, the neck of the teeth showing some; otherwise the treatment and cure was a success. I am,

Yours truly,

BERT A. BURNS, D.D.S.

Narragansett Pier, R. I., June 18.



## Local Anesthesia in Dentistry.

By PROFESSOR GUIDO FISCHER, Marburg.

New Edition (Die lokale Anästhesie in der Zahnheilkunde—dritte Auflage).

American Edition published by Lea Febrieger & Co., Philadelphia.

Review by David Fyfe, F.R.C.S.E., D.D.S., Etc., Glasgow.

One of the most important branches of modern dentistry is that of anesthesia. Prof. Fischer, with that wonderful patient scientific outlook and mind so characteristic of German scientists, has brought local anesthesia in its use for dental purposes to a high degree of perfection. The writer of this review procured on its first issue a copy of the excellent English translation by Dr. Rathmuller, of Professor Fischer's second edition of his book on local anesthesia. He was so struck with the importance of this class of work that he took the first available opportunity (which only occurred last autumn) of visiting and having personal study with Professor Fischer in the University Clinik at Marburg.

Several important advances have been made since the English edition was published. The anesthetic used is still novocain with a small percentage of synthetic suprarenin. The novocain-suprarenin is used in the form of tabloids. These tabloids must be *absolutely white in color*; any darkening or other discoloration must be discarded as dangerous. Many of the adverse reports on novocain are the result of using solutions which have decomposed and become toxic (whether this

Use of  
Novocain.

toxic change is in the suprarenin or the novocain is not quite clear). The solution used in which these tabloids are dissolved is Ringer's solution—the formula for which is:

R	Sodium Chloride .....	gram .05
	Potassium Chloride .....	" 0.002
	Calcium Chloride .....	" 0.004
	Distilled Water .....	ad 10 c.c.

Thus we see that thymol is no longer used as an ingredient. The solution must be carefully prepared with distilled water and must be absolutely sterile. The glass of the bottle in which the solution is kept must be alkali-free, otherwise the fluid becomes alkaline. The necessity for the solution being neutral in reaction is seen when one realizes that novocain is slightly acid. If alkaline, a pinkish discoloration results on the addition of the novocain, which must not be injected. The research work of such men as Fischer has emphasized the enormous importance of absolute asepsis in local anesthesia.

In preparing *Ringer's solution*, the writer has a reliable pharmacist prepare a few ounces guaranteed absolutely sterile. This is kept in a well-stoppered alkali-free glass bottle. The necessary quantity is poured into a small, thoroughly washed porcelain dish (with a handle). This is thoroughly boiled, then a novocain tabloid added and reboiled. It is wise to remove the stopper from the bottle over a Bunsen flame, thus sterilizing that part over which the solution must flow. Professor Fischer has tabloids prepared for him containing the ingredients of Ringer. He prepares about one ounce of the solution, which he keeps in a small bottle. This bottle is kept in a small electric sterilizer, and is always brought to the boiling point before the necessary quantity of the fluid is poured into the small mixing dish. He again boils after the novocain tabloid has been added. It is unwise to keep the Ringer solution too long, as it tends to decompose. Even the Ringer tabloids are better not used after a few months; completely fresh ones should be made.

The novocain solution may be used in the strength of 1%, 1½%, or 2%, depending on the depth of anesthesia required, also on the physical condition of the patient, a young child or a feeble adult having the lower percentages injected.

**Treatment of  
Hypodermic  
Syringes.**

The treatment of the hypodermic syringe is most important. The needles are made of iridio-platinum and can thus be passed into the flame and rendered absolutely sterile. Fischer has a glass jar (specially made for the purpose) with a tightly fitting glass lid. A metal stand, capable of holding three syringes, needles

downwards, is fitted into the jar, which is half filled with a solution composed of three parts absolute alcohol to one part pure glycerine (the glycerine absorbs any water that may get into the alcohol). The syringes are kept in this solution. Before being used the syringe must have some boiled water drawn into it to get rid of any sterilizing fluid in the barrel. The iridio-platinum needle is passed into a flame and made red-hot, then placed in the anesthetic solution and the syringe filled. These iridio-platinum needles are not removed from their syringes until they break or are otherwise rendered useless, when a new one is fitted. The hypodermics used by Fischer are of his own design and are excellent—all parts being of glass and metal. The plunger and barrel are so carefully fitted that a high degree of pressure is obtainable, this being necessary when injecting solutions under the periosteum.

**Sterilization of Gum Tissue.** Sterilization of the gums before injecting is most important. This he still does by the use of tincture of iodine. A pledge of cotton wool on an

instrument is saturated with tincture of iodine and the parts to be sterilized rubbed—not simply swabbed—with the solution. The rubbing is most important, as it mechanically cleanses the gums: thus mechanical cleansing plus fixation and destruction of micro-organisms is obtained.

**Neck Bandage.** Another point emphasized by Professor Fischer is the use of the neck bandage—so called stasis bandage. This has been advocated in the English edition of this book.

Time and experience have proved the importance of this procedure, more particularly with injections used to block the nerve trunks (conduction anesthesia), such as mandibular injections. In these cases a comparatively large quantity of the solution is thrown into loose tissue, and thus more quickly absorbed. The writer of this review has had a feeling that many of the annoying symptoms observed—when all aseptic precautions have been carefully carried out—such as faintness, quick pulse and semi-hysterical conditions, are due to the suprarenium, not to the novocain. A possible psychic influence must not be overlooked.

A London doctor, reporting in the *British Medical Journal* of May 2, 1914, says he gave himself an injection of 3 minums 1 in 1,000 adrenalin chloride solution, which was followed by a feeling of extreme illness. He had quick pulse, shaking, etc. Fischer insists that the neck bandage is a valuable means of lessening many of these troublesome symptoms. It acts by pressure on the superficial veins of the neck, thus lessening the tendency to anaemia of the brain.

**Conductive Anesthesia.** The technique in conductive and local anesthesia is unchanged from that found in the English translation. Fischer is a firm believer in conductive mandibular anesthesia. He has

found local anesthesia of the mandible, more particularly in the premolar and molar regions, most unsatisfactory, and almost exclusively uses the conductive method by injecting in the region of the inferior dental foramina. He very often injects into the region of both foramina, thus having complete anesthesia of entire lower jaw (and part of tongue). The present writer can testify to the efficiency of the anesthesia. He had a single injection made (*i. e.*, on one side only). Within five minutes the entire half of the jaw was absolutely anesthetized, the edge of the tongue, lip and external aspect of lower jaw being also involved in the anesthesia. In about an hour sensation was re-established. The injection was quite painless and was followed by no after pain nor disagreeable results beyond some anxiety (entirely psychic in its origin). I think it wise to avoid unnecessary conductive anesthesia in very high-strung and imaginative people, unless the operator be able to stand by and control the workings of the patient's mind.

**Novocain Failure in Local Anesthesia.** As a local injection in the mandible, novocain is a comparative failure. There is thus still ample field for research in local anesthetics. It is asserted that novocain is as powerful in its anesthetic properties as cocaine, while having only one-sixth of its

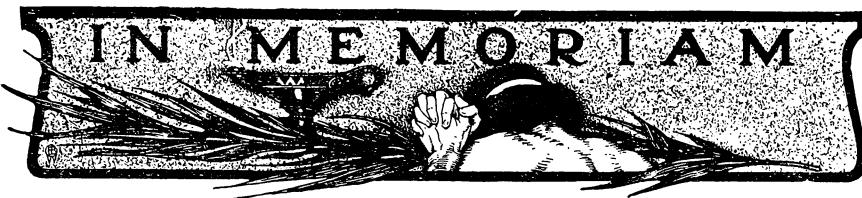
toxicity. The writer quite believes in the comparative non-toxicity of novocain, and thus considers it the only anesthetic suitable in conductive anesthesia (combined with the stasis bandage). Any preparation of cocaine is positively dangerous when used for conductive work, this due to the amount of the anesthetic and the laxness of the tissue into which the drug is injected, allowing of quick absorption into the general system. The statement as to its equality with cocaine or alypin as an anesthetic is not shown to be correct in clinical investigation. For satisfactory local anesthesia of the mandible some other anesthesia than novocain is necessary. The really ideal local anesthetic is still to be found.

**When Local Anesthesia Succeeds.** In the maxilla, on the other hand, the results of local anesthesia with novocain are excellent. The injection must be made under the periosteum and with considerable pressure, as explained in the English translation. Fischer uses the same technique as

that given in his former books for conductive anesthesia of the maxilla. He injects (with blunt needle) into the region of Meckel's Ganglion, and may inject both sides of the maxilla, thus giving a most efficient



anesthesia (sufficient to do a serious operation). For simple extractions or pulp work, local anesthesia is so thoroughly satisfactory that the writer has never seen any necessity for the more difficult conductive injection. There are two regions in the maxilla, to which special attention may be drawn, although they are really conduction anesthesia regions; the technique of injection is as simple as that of the local. One is the region of the large foramina, through which branches of the posterior superior dental nerve enter the maxilla. The needle is passed into the tissues at the junction of the gum with the cheek approximately above the second molar. The needle then passes upward and backward close to the bone (and with the opening of the needle facing the bone) behind the zygoma (which should be palpated with a finger). The other region is that of the posterior palatine foramen which lies close to the palatine aspect of the last erupted molar. Fischer never injects into the region of the anterior palatine fossa, *i. e.*, immediately behind and between the superior central incisors. The result of such an injection is acute pain, with no compensating results. Injection in the region of the infra-orbital foramen for conduction anesthesia is not very satisfactory. The value of a simple subperiosteal (local) injection in cases of hypersensitive dentine is undoubtedly, especially in the maxilla. A few minutes (about ten) should elapse from the time of the injection until work on the tooth is attempted. Fischer has nothing to say about so-called intra-alveolar injection. The results of such injections are excellent, and if carried out with the same aseptic precautions as taught by Fischer in his works no one should fear the slightest untoward result. The greatest difficulty in all forms of injection anesthesia is the preliminary pain of the needle. When this can be overcome we shall have gone far in perfecting methods of anesthesia. There is still ample field for research in anesthetic substances. So far we have not found the ideal. To those who have not read Professor Fischer's book on anesthesia the writer would most heartily recommend the English edition—which is excellently translated. The later developments given in this review will bring the reader up to date in this important subject.



### **Dr. Vines Edmunds Turner.**

Dr. Vines Edmunds Turner died in Raleigh, N. C., at his home on May 11, 1914.

Dr. Turner was born in Franklin County, N. C., on January 21, 1837, being seventy-seven years of age at the time of his death.

He attended high school at Henderson, N. C., preparatory to entering college, but abandoned this to assist his brother in the hardware business. Later he attended the Baltimore College of Dental Surgery, graduating in March, 1858, and practiced dentistry at Henderson until the outbreak of the Civil War. He then entered the Confederate Army service in 1861 as Second Lieutenant of Infantry. Later, was promoted to be adjutant of the Twenty-third North Carolina Regiment in 1862. Became a captain in 1863 and was serving on the staff of Major-General James A. Walker at the time of Lee's surrender. He was wounded in the battle of Cold Harbor in 1862, went through all the campaigns of the Valley of Virginia under General Jackson Early and was in the third days' fighting at the battle of Gettysburg.

In 1868 he married Miss Rozena Lassiter in Henderson, who died in 1869. In 1874 he married Miss Love Gales Root, of Raleigh, N. C., who survives him, as do also three children by this marriage, Dr. Charles R. Turner, of Philadelphia; Dr. Henry Turner, and Mrs. Henry M. Wilson, of Raleigh, N. C.

Dr. Turner was a charter member and a vice-president of the North Carolina State Dental Society which was organized in 1866; he was a member of the North Carolina State Board of Dental Examiners from the time of its organization; he was president of the Southern Dental Association in 1881; president of the National Association of Dental Examiners in 1901; one of the vice-presidents of the Dental Section of the Ninth International Medical Congress in 1887; president of the Jamestown Dental Conventions of 1907; president of the National Dental Association in 1908; treasurer of the National Dental Association 1904, 1905 and 1906; a member of the Examining Board of the Dental Reserve Corps of the United States Navy at the time of his death.



## IN MEMORIAM

He was president and director of the Raleigh Street Railway at its organization in 1887; director of the North Carolina Railway Co. for eight years; one of the organizers and for twenty-seven years director of the Raleigh Savings Bank; a charter member of the Capitol Club of Raleigh. He was also a Mason, likewise Junior Warden of Christ Church, Raleigh.

A complimentary banquet was given to him in 1908 by his colleagues in Raleigh on the occasion of his fiftieth anniversary. Another banquet was given to him and Dr. James McManus in Baltimore in June, 1910.

Dr. Turner was a typical Southern gentleman, mild in manner and lovable in disposition. It is probably absolutely true that he had not an enemy in the world. On the contrary, everyone who learned to know him at all was attracted by his splendid personality and was proud to call him friend.

---

### **Dr. Wm. Mitchell.**

The many friends in this country of Dr. William Mitchell will be grieved to learn that he died at his residence, 39 Upper Brook St., Grosvenor Sq., London, on June 9th, at the age of 60.

Dr. Mitchell had suffered a long illness and met the end peacefully. The last rites took place at Golders Green on June 11th.

Dr. Mitchell was widely known and much beloved in this country.

---

### **Dr. George Arthur Savage.**

Dr. George Arthur Savage died in the city of Worcester, Mass., after a brief illness of pneumonia at the age of forty-one years.

He was widely known on account of his porcelain work (bridge-work, inlays, jacket crowns, etc.).

He was the son of George E. and Winnifred Morgan Savage and was born in Worcester, Mass. He graduated from the Pennsylvania College of Dentistry in 1900.

He worked for many prominent dentists in this country and in Europe. He was with Dr. Bradbury, of Santa Barbara, Cal., two years.



### National Society Meetings.

AMERICAN INSTITUTE OF DENTAL TEACHERS, Ann Arbor, Mich, January 28-30, 1915.  
Secretary, Dr. J. F. Biddle, 517 Arch St., N. S., Pittsburgh, Pa.

NATIONAL DENTAL ASSOCIATION, Rochester, N. Y., July 7-10, 1914.  
Secretary, Dr. Otto U. King, Huntington, Ind.

AMERICAN SOCIETY OF ORTHODONTISTS, Toronto, Canada, July 2-3, 1914.  
Secretary, Dr. Wm. Ernest Walker, 629-631 Maison Blanche, New Orleans, La.

PANAMA-PACIFIC DENTAL CONGRESS, San Francisco, Cal., 1915.  
Secretary, Dr. Arthur M. Flood, 240 Stockton St., San Francisco, Cal.

EUROPEAN ORTHODONTIA SOCIETY, seventh annual meeting, Paris.  
Grand Hotel Continental, 3 Rue Castiglione, Tuesday, July 28th; Wednesday, July 29th. Clinics, Saturday, August 1st.  
Secretary, G. Lind, 542 Keizersgracht, Amsterdam, Holland.

### State Society Meetings.

FLORIDA STATE DENTAL SOCIETY, Atlantic Beach, Fla., July 1-2-3, 1914.  
Secretary, Dr. Alice P. Butler, Gainesville, Fla.

MINNESOTA STATE DENTAL ASSOCIATION, Duluth, Minn., August 6-8, 1914.  
Secretary, Dr. Benjamin Sandy, Syndicate Bldg., Minneapolis, Minn.



**NEW JERSEY STATE DENTAL SOCIETY**, Ocean Grove, N. J., July 15-18, 1914.

Secretary, Dr. John C. Forsyth, 430 E. State St., Trenton, N. J.

**OHIO STATE DENTAL SOCIETY**, Columbus, O., December 1-3, 1914.

Secretary, Dr. F. R. Chapman, 305 Schultz Bldg., Columbus, O.

**VIRGINIA STATE DENTAL ASSOCIATION**, Old Point Comfort, Va., July 1-3, 1914.

Secretary, Dr. C. B. Gifford, Norfolk, Va.

**WEST VIRGINIA STATE DENTAL SOCIETY**, Huntington, W. Va., August 12-14, 1914.

Secretary, Dr. A. C. Plant, 802 Schmulbach Bldg., Wheeling, W. Va.

**WISCONSIN STATE DENTAL SOCIETY**, Fond-du-Lac, Wis., July 14-16, 1914.

Secretary, Dr. O. G. Krause, Wells Bldg., Milwaukee, Wis.

---

### **National Mouth Hygiene Association. Announcement.**

A series of illustrated lectures on Mouth Hygiene is being prepared by this association for rental service.

The first lecture of the series, a talk suitable for a mixed adult audience or school pupils above the age of twelve years (designated as lecture "A"), is now ready.

The lecture set (manuscript and thirty-six lantern slides) will be furnished to members of State dental societies and others who may be considered as competent to present the matter to the public at a rental fee of One Dollar per use.

For further particulars and application blanks, address,

EDWIN N. KENT, D.M.D.,

Director of Extension Lectures.

222 Washington St., Brookline, Mass., U. S. A.

---

### **Meeting of National Dental Association.**

**Railway Passenger Rates, to and from Rochester, N. Y.**

(July 7-10, 1914)

1. The railways of the Trunk Line Association covering New York State (east of and including Buffalo, Niagara Falls, and Salamanca), New Jersey, Pennsylvania (east of and including Erie, Oil City, and Pittsburgh), Delaware, Maryland, District of Columbia, Virginia, and West Virginia (east of and including Wheeling, Parkersburg, and Huntington), have given an open rate of two cents per mile in each



direction in their respective territories with the minimum excursion rate of \$1.

Tickets to be sold and good going July 5 to 7, 1914, and returning to reach original starting point not later than July 13th.

2. The New England Passenger Association covering the railways of New England also grant the above privileges and limitations with tickets from their principal stations. The agent at other stations will require not less than forty-eight hours' notice to procure fares and tickets obtainable from the General Passenger Department of the railroad interested.

3. Eastern Canadian Passenger Association, Canada (east of and including Port Arthur, Sault Ste. Marie, and St. Clair and Detroit rivers), declined granting reduced fares.

4. Central Passenger Association—Territory west of Buffalo, Pittsburgh, Wheeling, Parkersburg, and Huntington to and including Chicago, and St. Louis and north of the Ohio River, including Cincinnati, Louisville and Cairo—have granted a rate of two cents per mile in each direction added to the tender received from Trunk Lines, through fares, however, not to be higher than the thirty-day summer tourist fares to Buffalo, N. Y., plus tender covered.

Signature form of tickets to be sold on July 4th-5th-6th with return limit to reach starting point not later than midnight of July 14, 1914, except in border territory common to the Trunk Lines, selling dates July 5th-6th-7th with return limit of July 13th.

Your committee suggests conferring with local agent for excursion rate with longer limit, if desired.

5. Southeastern Passenger Association—Territory south of Ohio and Potomac and east of Mississippi rivers—declined granting a concession in rates and suggest that the summer excursion tickets will be on sale daily before the time of meeting, from the principal stations in their territory, reaching Buffalo, Niagara Falls and other points contiguous to Rochester.

6. Western Passenger Association—Territory west of Chicago, Peoria, and St. Louis to and including Denver, Colo., and Cheyenne, Wyo., state that the summer tourist fares to Eastern sections will be available from principal points in their territory. The general basis of fares—two cents per mile in each direction to their Eastern gateways added to the fares over their lines.

Confer with local ticket agents.

7. Southwestern Passenger Association—Territory southwest of St. Louis, including Texas, Arkansas, Oklahoma, Missouri (south of Missouri River) and Louisiana (west of Mississippi River) and Mexico,



**Society Announcements**

suggest that the summer excursion rates are practically two cents per mile in each direction. Tickets on sale daily May 15th to September 30th, limited to return October 31st.

Confer with local agent.

8. The territory covered by the Trans-Continental Passenger Association. Pacific Coast and other far western territory not otherwise covered by the above associations, suggest that the summer excursion rate \$72.50 is as low as can be granted from San Francisco to Chicago and return. Sale dates for tickets June 29th-30th, and July 2d-3d.

Excursion tickets from Oregon and Washington to Chicago, daily during June and July.

9. Convenient Trains to Rochester:

Lv. St. Louis, Mo., via Big Four Route..... 11:30 A.M.

“ Indianapolis, via Big Four Route..... 5:50 P.M.

“ Cincinnati, O., via Big Four Route..... 6:05 P.M.

“ Dayton, O., via Big Four Route..... 7:45 P.M.

“ Springfield, O., via Big Four Route..... 8:30 P.M.

“ Columbus, O., via Big Four Route..... 9:55 P.M.

Ar. Rochester, N. Y., via N. Y. Central R. R..... 9:21 A.M.

—  
Lv. Chicago, Ill., via Lake Shore & Mich. So. Ry..... 5:30 P.M.

“ Toledo, O., via Lake Shore & Mich. So. Ry..... 11:15 P.M.

Ar. Rochester, N. Y., via N. Y. Central..... 8:45 A.M.

—  
Lv. Chicago, Ill., via Michigan Central R. R..... 5:40 P.M.

“ Grand Rapids, Mich., via Michigan Central R. R..... 5:10 P.M.

Ar. Rochester, N. Y., via N. Y. Central R. R..... 9:21 A.M.

Parlor Cars and Sleepers over these lines reach Rochester via N. Y. Central.

Through tickets to New York permit stopover of ten days at Rochester by depositing ticket at Station Ticket Office immediately upon arrival. A convenience to those joining the European Tour or visiting the Metropolis.

10. From N. Y. to Rochester—Excursion tickets sold July 5th-7th, return by July 13th.

Lv. New York, via N. Y. Central.... 8:30 A.M. 9:34 P.M. 11:35 P.M.

Ar. Rochester, N. Y., via “ .... 4:05 P.M. 6:30 A.M. 8:13 A.M.

Rate to Rochester—excursion both directions..... \$14.45

—  
Lv. New York, N. Y., via West Shore R. R.... 8:35 A.M. 7:20 P.M.

Ar. Rochester, N. Y., via West Shore R. R.... 6:40 P.M. 5:12 A.M.

Rate to Rochester—excursion both directions..... \$13.40



Lv. New York, N. Y., via Lehigh Valley R. R.,  
9:50 A.M. 11:50 A.M. 8:50 P.M.  
Ar. Rochester, N. Y., via Lehigh Valley R. R.,  
9:44 P.M. 9:44 P.M. 8:25 A.M.  
Rate to Rochester—excursion both directions.....\$13.40  
For ten or more people, traveling on one ticket..... 13.20  
Black Diamond Express (11:50 A.M.) fare \$13.40; Pullman seat \$1.75.

---

Your committee suggests conferring with local railway agents with reference to excursion rates to Rochester or nearby points, with stopover privileges.

NATIONAL DENTAL ASSN. TRANSPORTATION COMM.

V. H. JACKSON, Chairman.

H. F. HOFFMAN, Denver, Colo.,

L. P. DOTTERER, Charleston, S. C.,

T. S. SMITH, Palo Alto, Cal.,

WM. W. BELCHER, Rochester, N. Y.

---

### **Rhode Island Board of Registration in Dentistry.**

The Rhode Island Board of Registration in Dentistry will meet in the State House, Providence, R. I., July 1, 2 and 3, 1914.

For applications and further information apply to

ALBERT E. SEAL, Secretary.

12 East Ave., Pawtucket, R. I.

---

### **Vermont State Dental Society.**

The thirty-eighth annual meeting of the Vermont State Dental Society was held in Rutland, Vt., May 20, 21 and 22, 1914.

The officers elected for the ensuing year are as follows: Thomas Mound, Rutland, president; W. H. McGoff, Montpelier, first vice-president; H. M. Smith, Lyndonville, second vice-president; P. M. Williams, Rutland, secretary; W. H. Munsell, Wells River, treasurer. Executive Committee, G. E. Partridge, Burlington; W. R. Pond, Rutland, and David Manson, Burlington.

P. M. WILLIAMS, Secretary.

Rutland, Vt.



## Arizona Board of Dental Examiners.

The Arizona Board of Dental Examiners will meet at Phoenix, Ariz., beginning October 5, 1914. Prospective candidates should apply at once to Sydney P. Osborn, Secretary of State of Arizona, at Phoenix, Ariz., for an application blank, and return same to him, properly filled out, together with the fee of \$25.

DR. J. HARVEY BLAIN, Secretary.

Prescott, Ariz.

---

## Illinois State Dental Society.

Following is a list of officers of the Illinois State Dental Society elected for the ensuing year:

President, J. M. Barcus, Carlinville; Vice-President, J. P. Buckley, Chicago; Secretary, Henry L. Whipple, Quincy; Treasurer, T. P. Donelan, Springfield; Librarian, J. D. Wilson, Danville.

The fifty-first annual meeting is to be held at Peoria, Ill., May 11, 12, 13 and 14, 1915.

HENRY L. WHIPPLE, Secretary.

Quincy, Ill.

---

## The Panama-Pacific Dental Congress.



OPENS AUG. 30TH, 1915

The work of organizing the Panama-Pacific Dental Congress is progressing in a most satisfactory manner, and it is confidently expected that by January 1, 1914, twenty months before the opening of the Congress, all the preliminary work of organization will have been accomplished.

A few foreign countries and a few of our States have yet to appoint Executive Committees to carry on their part of the work of publicity and securing program and memberships. Within

the next two weeks invitation will be sent to those who are selected by the Committee of Organization to act as officers of the various sections of the Congress, and in each case an urgent request will be made for a prompt reply, that there may not be experienced in this matter the delay which in some cases has attended the appointment of State and National Executive Committees.

Three hundred thousand "stickers" bearing the seal of the Congress and the date on which it will convene have been sent to dealers in dental



and pharmaceutical preparations throughout the world, all of whom have expressed a willingness to attach them to every package and letter sent to their customers between now and August 30, 1915. Demands are already being made for more "stickers," and probably one hundred thousand more will be distributed. The Congress will in this way be brought to the attention of every dentist in the world, not once, but many times, and no one will be allowed to forget the date on which he should be in San Francisco to participate in what promises to be the world's greatest Dental Congress.

Work is progressing rapidly on the Auditorium in which the Congress will meet, and it will undoubtedly be housed in one of the largest and most complete buildings ever erected for such a purpose.

---

### **Xi Psi Phi Fraternity—National Alumni Association.** "Goodfellowship, not Politics"

The next annual meeting will be held in Rochester, N. Y., Monday, July 6th.

The afternoon entertainment will be under the direction of the Local Committee of Arrangements.

The banquet will be held at 6:30, followed by the annual business meeting.

The Hotel Seneca has been secured as headquarters. Register early in the Xi Psi Phi Parlor on Mezzanine Floor and "get in touch."

---

### **Oklahoma State Dental Society.**

The following officers were elected by the Oklahoma State Dental Society at its recent annual meeting:

President, J. M. Temples, Tulsa; vice-president, J. H. Sims, Watonga; secretary, C. R. Lawrence, Enid; treasurer, A. B. Walker, Fairview.

The next annual meeting will be held in Oklahoma City about March, 1915.

C. R. LAWRENCE, Secretary.

Enid, Okla.

